PG-FLEX*PLUS*

TECHNICAL PRACTICE

Model	List	CLEI Code
PLL-735	1	S9L1AR0A~~
PLL-735	2	S9L1AREA~~
PLL-735	3	S9L1ARFB~~

Revision History of This Practice

Revision	Release Date	Revisions Made
01	April 17, 2000	Initial Release List 1
02	May 31, 2001	Initial Release Lists 2 and 3
03	January 10, 2002	Release to rebrand document to comply with ADC standards
04	January 6, 2003	Updated Product Support Information

USING THIS PRACTICE

Three types of messages, identified by icons, appear in the text.

Notes indicate information about special circumstances.

Cautions indicate the possibility of equipment damage or the possibility of personal injury.

Electrostatic Discharge (ESD) susceptibility symbols indicate that a device or assembly is susceptible to damage from electrostatic discharge.You must wear an antistatic wrist strap connected to the appropriate ground connection prior to performing installation procedures. You must also observe normal ESD precautions when handling electronic equipment. Do not hold electronic plugs by their edges. Do not touch components or circuitry.

INSPECTING YOUR SHIPMENT

Upon receipt of the equipment:

- Unpack each container and visually inspect the contents for signs of damage. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company and to ADC. Order replacement equipment, if necessary.
- Check the packing list to ensure complete and accurate shipment of each listed item. If the shipment is short or irregular, contact ADC as described in "Returns" on page 63. If you must store the equipment for a prolonged period, store the equipment in its original container.

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OVERVIEW

The PG-Flex*Plus*™ PLL-735 is a Dual Integrated Central Office Line Unit (DICOLU) that drives two Remote Terminals (RTs) to provide for Plain Old Telephone Service (POTS), Integrated Services Digital Network (ISDN), and Universal Voice Grade (UVG) subscriber services.

DESCRIPTION AND FEATURES

To support the DICOLU, a PG-Plus® Alarm Unit (PAU) or PG-Flex*Plus* Management Unit (PMU) and a PG-Flex*Plus* Multiplexer Unit (PMX) must be installed in the PG-Flex*Plus* Central Office Terminal Shelf (COTS). Figure 1, "Typical IDLC Configuration," on page 1, illustrates the components of a PG-Flex*Plus* system. When operating in the IDLC mode, the RT determines the type of services being supported.

PLL-735 List 1 does not support ISDN services.

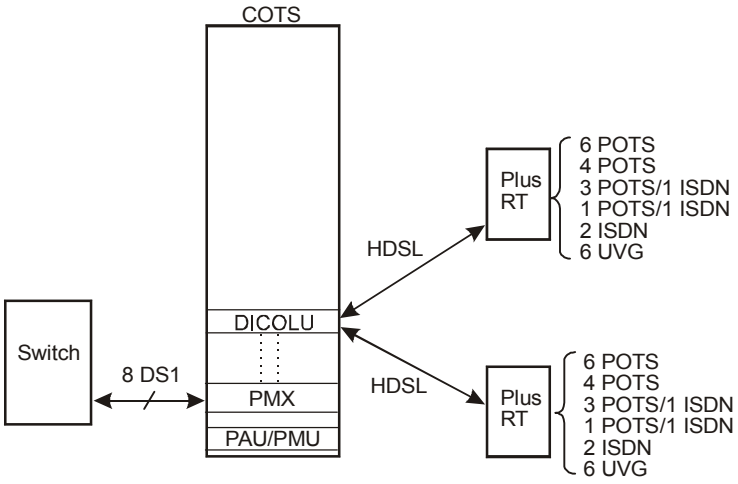

Figure 1. *Typical IDLC Configuration*

The PG-Flex*Plus* system provides bidirectional transport of multiple DS0s over a single, unconditioned wire pair using High-bit-rate Digital Subscriber Line (HDSL) technology. Using existing cable, PG-Flex*Plus* provides for higher bandwidth needs of residential and business customers by providing multiple subscriber services on a single twisted-pair wire.

Each DICOLU is installed in the COTS and interfaces with two corresponding RTs. Digital lines from the Central Office (CO) connect to the COTS and are sent by means of the DICOLU and the HDSL wire pairs to the two RTs. As an example, a 23-inch COTS can interface with 32 different RTs providing 6 POTS lines each, for a total of 192 subscriber lines. The COTS operates on standard -48 Vdc CO battery and supplies power to the RT over the HDSL pairs, eliminating the need and expense of providing local power. A PG-Flex*Plus* system with HDSL transmission and line powered RTs results in fast, cost-effective solutions to subscriber service deployment over existing copper facilities.

SPECIFICATIONS

Power Supply

Input Voltage	-42.5 Vdc to -56.0 Vdc

HDSL Line

Output Voltage	± 140 Vdc (maximum)
Output Power	27 W (maximum)
HDSL Line Code	2B1Q
HDSL Line Rate	See Table 1, "HDSL Lines," on page 2
HDSL Reach	See Table 1, "HDSL Lines," on page 2
Maximum Line Attenuation	See Table 1, "HDSL Lines," on page 2

Environment

Operating Temperature	-40° F to +150° F (-40° C to +65° C)
Operating Humidity	5% to 95% noncondensing
Altitude	-200 ft to 13,000 ft (-60 m to 4,000 m)

Compliance

NEBS	SR-3580 for Level 3
ESD	Per GR-1089-CORE
Power and Lightning	Per GR-1089-CORE
Human Safety	UL 1950 for Restricted Access
Emissions Radiation and Immunity	Per GR-1089-CORE for Class A equipment

Dimensions

Height	5.50 in. (14.0 cm.)
Width	1.10 in. (2.8 cm.)
Depth	10.25 in. (26.0 cm.)
Weight	1.00 lbs. (0.5 kg.)

Table 1. *HDSL Lines*

DS0s	HDSL Line Rate	Maximum Attenuation	HDSL Reach			
			26 AWG	24 AWG	22 AWG	19 AWG
4	262 kb/s	45.9 dB	15.0 kft 4.6 km	21.6 kft 6.6 km	31.2 kft 9.5 km	49.7 kft 15.1 km
6	392 kb/s	41.6 dB	12.5 kft 3.8 km	18.0 kft 5.5 km	25.2 kft 7.7 km	37.8 kft 11.5 km

POWER CONSUMPTION AND HEAT DISSIPATION

Table 2, "Power Consumption and Heat Dissipation," on page 3, lists the power consumption and heat dissipation for the DICOLU, on a per slot and per COTS basis.

The worst case conditions under which these parameters are measured include two 6 POTS RTs at 12.5 kft loop length each with 4 lines off-hook and two lines each, ringing into 5 REN loads, a fully loaded COTS, and -42.5 Vdc COTS battery voltage. All loops are assumed to be 26 AWG.

Table 2. *Power Consumption and Heat Dissipation*

Power	COLU	COTS	
		19 inch	23 inch
Maximum Heat Dissipation			
HDSL Line Power Off	3.5 W	42 W	56 W
HDSL Line Power On	7.0 W	84 W	112 W
Maximum Power Consumption			
HDSL Line Power Off	3.5 W	42 W	56 W
HDSL Line Power On	32.5 W	390 W	520 W
Maximum Current Drain			
HDSL Line Power Off	83 mA	0.99 A	1.32 A
HDSL Line Power On	765 mA	9.18 A	12.24 A

Maximum Heat Dissipation

The maximum heat dissipation measures the power converted into heat that is built up within the DICOLU. It contributes to the total heat generated in the space around the DICOLU. This is used to determine the maximum number of fully loaded COTS per bay that do not exceed the maximum allowable power dissipation density in Watts per square foot.

Thermal Loading Limitations

The thermal loading limitations imposed when using the DICOLU in a CEV or other enclosures are determined by applying the DICOLU power parameters to the manufacturer's requirements for each specific housing.

Maximum Power Consumption

The maximum power consumption is the total power that the DICOLU consumes or draws from the CO battery. This parameter is needed when the DICOLU is located remotely from its serving CO. It determines the battery capacity required to maintain an 8-hour standby battery reserve for emergency situations.

Maximum Current Drain

The maximum current drain is the maximum current drawn from the CO battery supply when it is at its minimum voltage (-42.5 Vdc). This determines the COTS fusing requirements.

MONITORING, HISTORY AND DIAGNOSTICS

DICOLUs provide extensive real-time, nondisruptive monitoring of HDSL transmission performance parameters for all units in a circuit. You can select threshold settings for the performance monitoring measurements at the appropriate DICOLU screen. These settings cause alarms to be activated at the designated threshold setting. HDSL performance is also monitored. Monitored parameters include the following:

- HDSL - Noise margin, insertion loss, ES, UAS
- ISDN Interface - ES and UAS seconds

Performance Parameters

Based on the monitored parameters, the DICOLUs derive the following performance parameters:

- MAR: A measure of the ratio of signal power to noise power, in decibels (dB), at a receiver point. A value of 0 dB means that the predicted transmission BER is equal to 10^{-7}, a value of 6 dB means the predicted transmission BER is equal to 10^{-10}. The Status screen of the console continuously updates the margin value. You can set the high and low values of this parameter for the DICOLU and the RT at the "HDSL-A and HDSL-B Status Screens" on page 22 and the severity of the alarm at the "HDSL-A and HDSL-B Alarm Types Screens" on page 39. View the results of these settings at the "Overall Status Screen" described on page 21.
- LOSW: The DICOLU has detected an error in one or more bits in five consecutive HDSL SYNC words. Five consecutive SYNC words must be received without error to clear this condition. A LOSW condition generally indicates the loop is down, thus data cannot be transmitted. The DICOLU uses this parameter to derive UAS performance parameter. You can set the severity of the alarm at the "HDSL-A and HDSL-B Alarm Types Screens" on page 39. View the results of these settings at the "HDSL-A and HDSL-B Summary Screens" on page 25.
- HDSL ES: An interval of 1 second during which at least one CRC is detected at the incoming HDSL port. You can set the value of this parameter for the DICOLU and the RT at the "HDSL-A and HDSL-B Alarm Thresholds Screens" on page 38 and at the "HDSL-A and HDSL-B Alarm Types Screens" on page 39 set the severity of the alarm. View the results of these settings at the "HDSL-A and HDSL-B Summary Screens" on page 25.
- HDSL UAS: An interval of 1 second during which a loop is down. You can set the value of this parameter for the DICOLU and the RT at the "ISDN-A and ISDN-B Alarm Thresholds Screens" on page 43 and at the "HDSL-A and HDSL-B Alarm Thresholds Screens" on page 38 set the severity of the alarm. View the results of these settings at the "HDSL-A and HDSL-B Summary Screens" on page 25.

Alarms

The DICOLUs generate the listed alarms for fault conditions on the HDSL transmission facility and at the application interface. You can view the alarm status from the "Overall Status Screen" described on page 21.

- MAR - The margin default value or a value you selected has been reached, or the unit is below the current threshold value set.
- ES - The errored seconds are measured by both 15-minute or 24-hour thresholds. The threshold has been reached or exceeded if an alarm exists.
- UAS - The unavailable seconds are measured by both 15-minute or 24-hour thresholds. The threshold has been reached or exceeded if an alarm exists.
- PFO - The DICOLU cannot power the RTs due to an open circuit.
- PFS - The DICOLU cannot power the RTs due to a short circuit.
- PGF - The DICOLU cannot power the RTs due to HDSL Tip or Ring fault to ground.

- LOSW - If the alarm is on the DICOLU, then the DICOLU cannot synchronize with the A or B RT, then the DICOLU and the A or B RT are out of service. If the alarm is on the RTs, then the A or B RTs cannot synchronize with the DICOLU, and the DICOLU and the A or B RT are out of service
- MISMATCH*n* - Incompatible RT*n* unit has been installed.
- PARITYERR - The DICOLU implements parity generation and detection on the data transferred between the PMX and the COLUs on the backplane. If parity errors are detected coming from a PMX, an alarm is generated and all circuits are placed in a Trunk-Conditioned state.
- BKUPMEMP - EEPROM Failure
- NORTSW*n* - RT*n* has no application software and is awaiting software download.

Alarm Types

Any alarm may be set the alarm to any of these values:

- Major - MJ
- Minor - MN
- Critical - CR
- Not Alarmed - NA
- Not Reported - NR

History

Current cumulative counts of the past 24 hours and historical data in the form of a 24-hour history (in 15-minute increments) and a 7-day history (in 24-hour increments) are available to assist you in identifying problem sources. You can view the HDSL history from the "HDSL-A and HDSL-B History Screens" described on page 33.

- HDSL Interface: 24-Hour (15-minute intervals) and 7-Day (24-hour intervals) for ES and Unavailable Seconds (UAS)
- Alarm: Time stamp of first and last occurrence, number of occurrences for all enabled alarms

LED DESCRIPTIONS

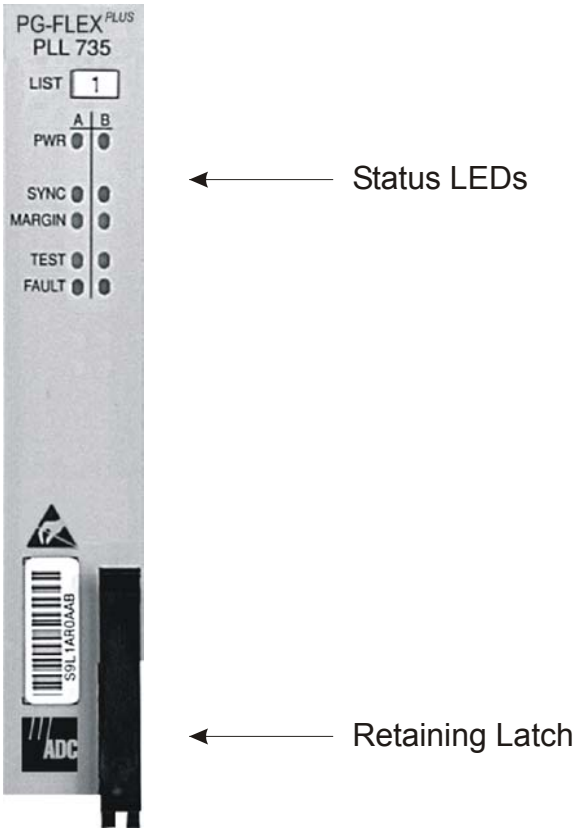

Figure 2. *LEDs on Front Panel*

For further details on the LEDs activities, refer to "Initialization Sequence" on page 9 and the "DICOLU and RT Fault Indicators" on page 60.

All HDSL alarms in the PG-Plus application are suppressed when initially installed and powered up. Any alarms that are generated during this process are suppressed. When the HDSL circuit is synchronized and the DICOLU and RT margin has cleared; outstanding alarms that have been suppressed are made active and reported to the PAU or the PMU, based upon their provisioned types.

Table 3 describes the LEDs on the DICOLU front panel. If you have installed two RTs then both LED columns light in the manner described.

Table 3. *LED Descriptions*

LED	Color	State	Description
PWR	Green	On, all other LEDs flashing	PLL-735 running in boot mode due to invalid application program.
		On, all other LEDs running downward	Software is being loaded into the PLL-735.
		On, all other LEDs running upward	Software is being loaded into an RT connected to the PLL-735.
		On, FAULT flashing	DC power applied to the HDSL pair is out of normal range.
		On	HDSL is in sync between the PLL-735 and RT.
		Flashing	HDSL is not in sync between the PLL-735 and RT.
		Off	PLL-735 is not receiving CO battery.
SYNC	Green	On	HDSL is in sync between the PLL-735 and RT.
		Flashing	HDSL is attempting to sync between the PLL-735 and RT.
		Off	No RT is detected.
MARGIN	Yellow	On	PLL-735 HDSL margin is below the preset threshold.
		Flashing	RT HDSL margin is below the preset threshold.
		Off	PLL-735 and RT margins are above the preset threshold.
TEST	Yellow	On	A subscriber drop test is in progress.
		Off	No subscriber drop test is in progress.
FAULT	Red	On	PLL-735 has detected a fault.
		Flashing	PLL-735 has an active alarm.
		Off	No PLL-735 faults detected and no alarms active.

INSTALLATION AND TEST

Always treat the HDSL pair as if it were live with high voltage present. Use caution when installing an HDSL pair that is already connected to a DICOLU, because dangerous voltages are present on the HDSL pair. The DICOLU, unless previously disabled by means of craft provisioning, periodically attempts to power up the RT by applying ± 100 Vdc with respect to ground to the HDSL pair. The DICOLU also initiates a start-up after a momentary short has been applied to the HDSL pair and responds with start-up voltage three seconds after removal of the short.

Electrostatic Discharge (ESD) susceptibility symbols indicate that a device or assembly is susceptible to damage from electrostatic discharge. You must wear an antistatic wrist strap connected to the appropriate ground connection prior to performing installation procedures. You must also observe normal ESD precautions when handling electronic equipment. Do not hold electronic plugs by their edges. Do not touch components or circuitry.

REQUIRED TOOLS AND TEST EQUIPMENT

No tools are required to install the DICOLU. For testing, the following tools may be utilized:

- Telephone test set
- PSU-795 List 1 COTS Continuity Test Card, part number 150-1695-01, (optional)

INSTALLING THE DICOLU

You can install the DICOLU in any slot except the three positions labeled COMMON, MUX 1, and MUX 2. Refer to the cabling tables provided in the COTS documentation for slot and Telco cabling assignment.

1 Open the retaining latch on the front of the DICOLU.

2 Insert the DICOLU into the card guides in a vacant slot in the COTS that corresponds to the location of the wiring from the CO switch. Engage the retaining latch to hold the card in place.

INITIALIZATION SEQUENCE

After installing the DICOLU, the following events occur:

- All LEDs briefly blink on and then off, with the exception of the PWR LED that remains Flashing.
- After about 5 seconds, the DICOLU applies power and goes into start-up mode. If an RT is present and no PGFs or PFOs are detected, the PWR LED is on green. If line 1 is off-hook, the HDSL power is not applied until it goes on-hook for at least 3 seconds. There is a 5-second delay before turning on the HDSL power.
- After applying the HDSL power, the tests for overload or underload conditions are performed. If the HDSL line power is normal, the PWR LED is on and HDSL start-up is initiated.
- As the DICOLU continues with the start-up, the SYNC LED flashes indicating the HDSL line is attempting to acquire synchronization. When complete, the SYNC LED is on. It takes approximately 2 to 3 minutes from the system power-up until synchronization is achieved. The DICOLU attempts to synchronize every 5 minutes until synchronization is achieved.
- MARGIN LED is on yellow indicating the DICOLU signal-to-noise ratio is equal to, or below, the selected signal-to-noise ratio threshold on the DICOLU. The MARGIN LED Flashes if the signal-to-noise ratio of the HDSL line is equal to, or below, the selected signal-to-noise ratio threshold on the RT.

SUBSCRIBER DROP TESTS

Select the Subscriber Drop Test (SDT) feature from the Test submenu. Relays on the RT provide a path for performing an SDT. Tests performed are detailed in Table 4, “Subscriber Drop Test Components,” on page 9.

Table 4. *Subscriber Drop Test Components*

Unit Types	Component	Failure Condition	Status Values
POTS and ISDN	Hazardous Potential	T-G or R-G > 50 Vrms T-G or R-G > 135 Vdc	Passed Failed
POTS and ISDN	Foreign Voltage	T-G or R-G AC volt. > 10 Vrms T-G or R-G DC volt. > 6 Vdc	Passed Failed
POTS and ISDN	Resistive Fault	T-G, R-G, or T-R resistance, 150 KW	Passed Failed
ISDN only	Network Termination	No change in T-R DC resistance with a change in applied test voltage.	Passed Failed
POTS only	Receiver Off-hook	Phone is off-hook	Passed Failed
POTS only	Ringers Test	Ringer load across T-R > 5 REN Ringer load across T-R < 0.1 REN	Passed Failed

ADMINISTRATION

To complete an initialization sequence using the craft interface, connect a VT-100 compatible terminal or a personal computer with VT-100 terminal emulation software to the RS-232 interface of the PG-Plus Management Unit (PMU) or the PG-Plus Alarm Unit (PAU) front panel or COTS backplane. The VT-100 interface allows "real time" updating of information displayed on the screen, rather than requiring technician interaction to refresh the screen. Through the craft interface screens, system administration functions such as alarm checking and clearing, configuration changes and performance monitoring and testing can be performed.

FRONT PANEL CRAFT PORT TO TERMINAL CONNECTIONS

Connections between the RS232 craft port of the PMU or PAU and the craft terminal are shown in Figure 3, "Front Panel Craft Port to Terminal Connections," on page 10.

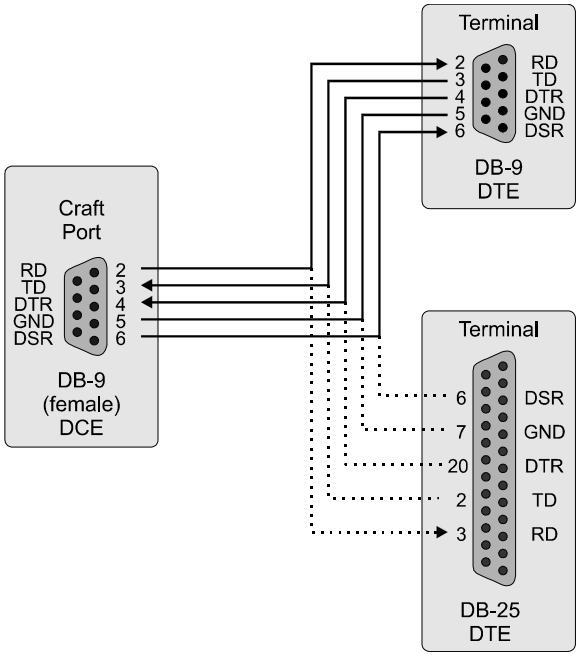

Figure 3. *Front Panel Craft Port to Terminal Connections*

FRONT PANEL CRAFT PORT TO MODEM CONNECTIONS

Using a cable that connects the Data Terminal Ready (DTR) signal will ensure automatic log off when the terminal is unplugged. When connecting the RS-232 port to a modem, a null modem cable should be used. Ensure that the modem's Carrier Detect (CD) and DTR functions are enabled. This will allow the modem connection to terminate properly when the PMU or PAU drops Data Set Ready (DSR) and the unit will log off when the modem drops CD. The following connections are required to make the modem work correctly (see Figure 4, "Front Panel Craft Port to Modem Connections," on page 11).

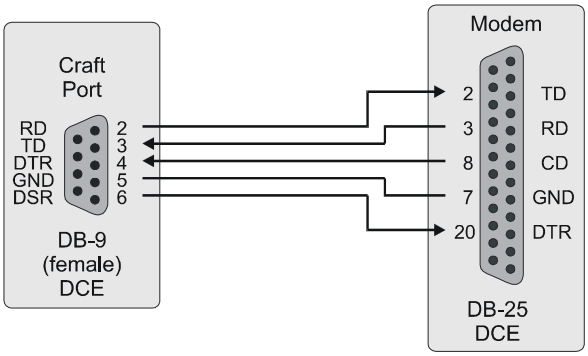

Figure 4. *Front Panel Craft Port to Modem Connections*

BACKPLANE CRAFT PORT TO TERMINAL CONNECTIONS

Use a null modem cable to connect to a DTE device from the backplane connector. Figure 5, "Backplane Craft Port to Terminal Connections Using a Null Modem Cable," on page 11 shows the wiring for the required null modem cable to a DB-9 and a DB-25 connector.

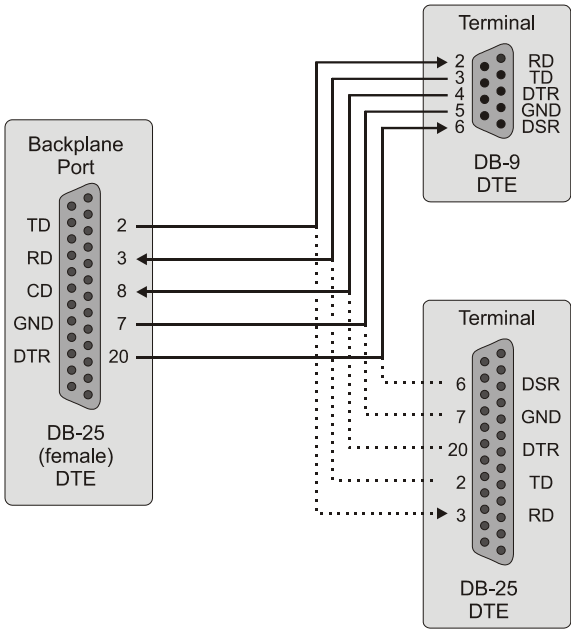

Figure 5. *Backplane Craft Port to Terminal Connections Using a Null Modem Cable*

BACKPLANE CRAFT PORT TO MODEM CONNECTIONS

The backplane DB-25 is a female connector wired as a Data Terminal Equipment (DTE) interface. Figure 6, "Backplane Craft Port to Modem Connections," on page 12 shows the cable connections between the backplane connector and a DCE DB-25 connector.

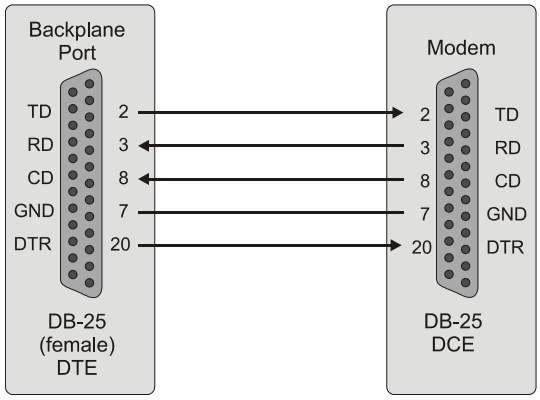

Figure 6. *Backplane Craft Port to Modem Connections*

Refer to Table 5, "Craft Port Configuration," on page 12 to set up the VT-100 craft port connections.

Table 5. *Craft Port Configuration*

Control	Setting	Supported	Default
Software Flow Control	XON/XOFF	Enabled	Enabled
Baud Rate		PAU: 1200, 2400, 4800, 9600, 38400	Autobaud
		PMU: 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600	
Asynchronous Communication Parameters	Data Bits	8	8 bits
	Parity	No	No
	Start/Stop Bits	1	1 Stop Bit

NAVIGATIONAL METHODS

The following keys are used to navigate through the menus and screens:

Keypress	Effect on Menu	Effect on Screen
ENTER	Moves to submenu or screen selected.	Invokes selected response to prompt.
← or CTRL-F	Moves left across Main menu.	Moves the cursor to the left.
→ or CTRL-G	Moves right across Main menu.	Moves the cursor to the right.
↑ or CTRL-T	Moves up the submenu selection.	Moves the cursor up.
↓ or CTRL-V	Moves down the submenu selection.	Moves the cursor down.
TAB	No effect.	Moves to the next field on all other submenu screens.
SPACE	No effect.	Cycle through the field options.
ESC	Moves up a menu level. From the Main menu, the Logout screen is displayed.	Returns to Main menu without accepting changes.
CTRL-R	Returns to the main menu.	The banner briefly appears and then the main menu bar displays.
A - Z keys	Selects an underlined or highlighted menu item.	A screen entry is made.

LOGGING ON

The factory-default password is `password#1`. If you establish a different password, you must type the new password at a subsequent log on.

Passwords are not case sensitive. The password must use at least 6 and no more than 10 characters, and MUST contain at least 1 alpha, 1 numeric, and 1 special character.

If the password has been changed and you do not know the new password, contact ADC Technical Support (see "Technical Support" on page 63) while at the terminal. They will provide you a temporary password that is based on the Access Key number displayed on the Logon screen. The Access Key changes whenever you change the password, or when you use the temporary password, so you should be at the terminal when you contact Technical Support. When you use the temporary password, the password previously stored in the software is set to the factory default of `password#1` and the temporary password will no longer be valid.

1. After connecting a VT-100 terminal to the PMU, press ENTER on the VT-100 terminal several times to start the autobaud feature. The Login Password screen or the TL1 screen will display.

If the Login Password screen displays, skip step 2 and go directly to step 4.

2. To change from TL1 mode to screen interface mode, enter the `chg-dialog;` command at the TL1 prompt and press ENTER. This TL1 prompt is illustrated in Figure 7, "TL1 Screen Mode," on page 14. After approximately two to three seconds, the TL1 screen display will change to screen interface mode and the Password screen will appear as shown in Figure 9, "Login Password Screen," on page 15.

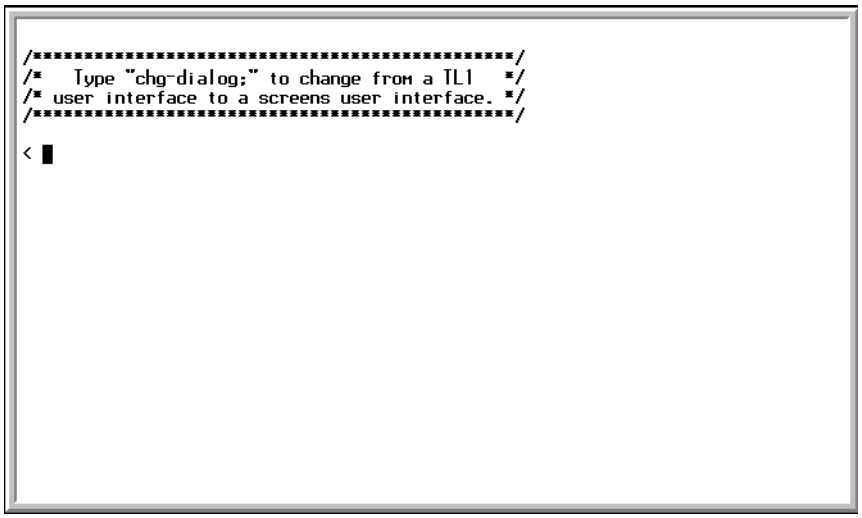

Figure 7. *TL1 Screen Mode*

The Factory Default mode is in both TL1 and Screen Mode; all COTS open with the TL1 prompt as shown above when you first establish a connection. If you select to manage the COTS through the TL1 terminal mode, refer to the applicable TL1 command reference practice for this information.

You can download this document from the ADC Technical Manuals web page at www.adc.com.

Entering the TL1 prompt `chg-mode::screens` will permanently change the interface to screens mode, while entering `chg-dialog;` is for the current session only.

3. When the terminal mode is both, you can start a screens session by entering the following TL1 command:

chg-dialog;

The TL1 parser returns with the following TL1 command response:

Figure 8. *TL1 Command Response Screen*

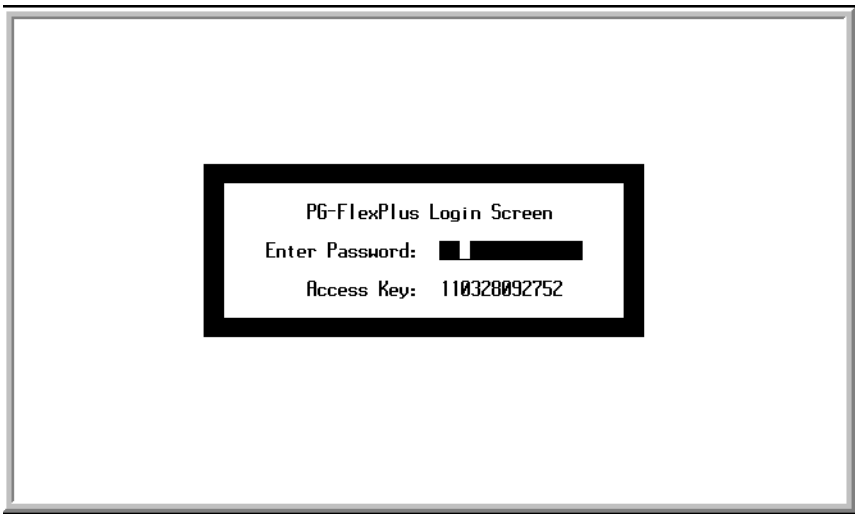

Figure 9. *Login Password Screen*

4 Type the password, then press **ENTER**. If an invalid password was entered, the Login screen will be re-displayed with the message `Invalid Password... Try Again:`.

5 The banner displays briefly, then the PMU main menu is displayed:

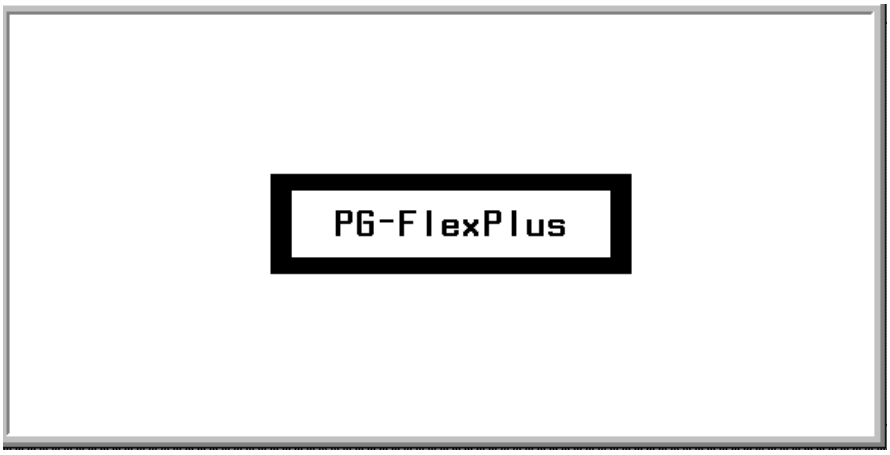

Figure 10. *Banner Screen*

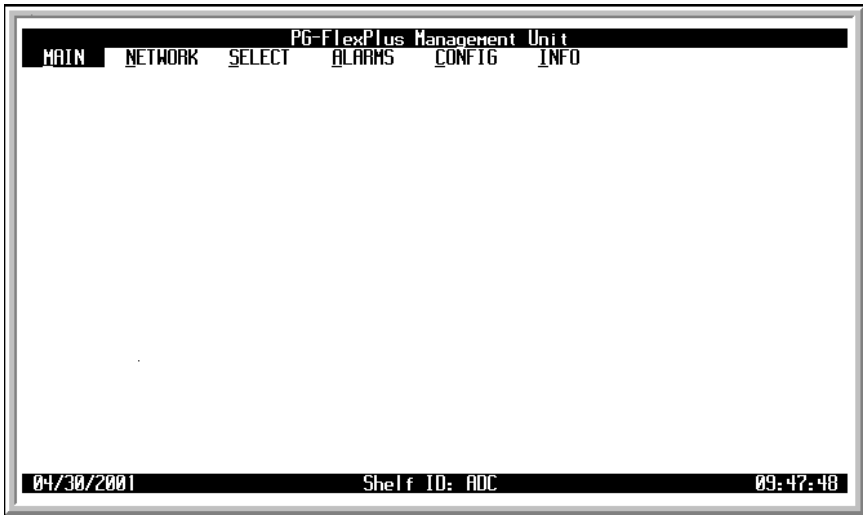

Figure 11. *PMU Main Menu*

6 If you know the slot number in which the DICOLU is installed, go to the next step. If you do not know the slot number:

a Select the menu option *MAIN* at the PMU main screen, and press **ENTER** to view the submenu.

b Select the submenu option *Shelf Summary* and press **ENTER** to display the inventory of the shelf COLUs. Note the slot number, then press **ESC** to return to the PMU main menu. Continue with step 5.

7 Move to the *Select* menu option and press **ENTER** to view the shelf slot list:

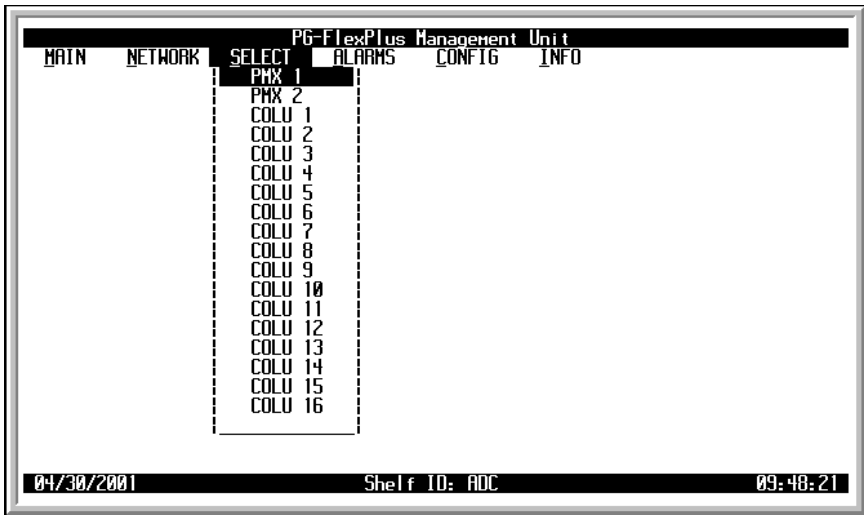

Figure 12. *Select Submenu Screen*

8 Select the slot number in which you installed the DICOLU and press **ENTER**.

LOGGING OFF

If you must leave your VT-100 terminal unattended, log out until you are ready to resume work. This prevents unauthorized persons from inadvertently changing any of the system operating parameters. Log out by choosing `Logout` from the PMU main submenu bar or by disconnecting the cable connecting the terminal to the PMU-712 or COT shelf backplane connector.

MAIN SCREEN

The DICOLU main screen provides access to the PLL-735 functions through the menu items. “Navigational Methods,” on Page 14, defines methods used to move through the screens, and Figure 14, “DICOLU Menu Structure,” on page 19, is an illustrative map of DICOLU menu structure. The date and times displayed are the default values for the system. To set the date and time for the shelf, at the PMU or PAU, select the *CONFIG* submenu item *Date and Time* and press ENTER. All COLUs in the shelf will update to the set date and time.

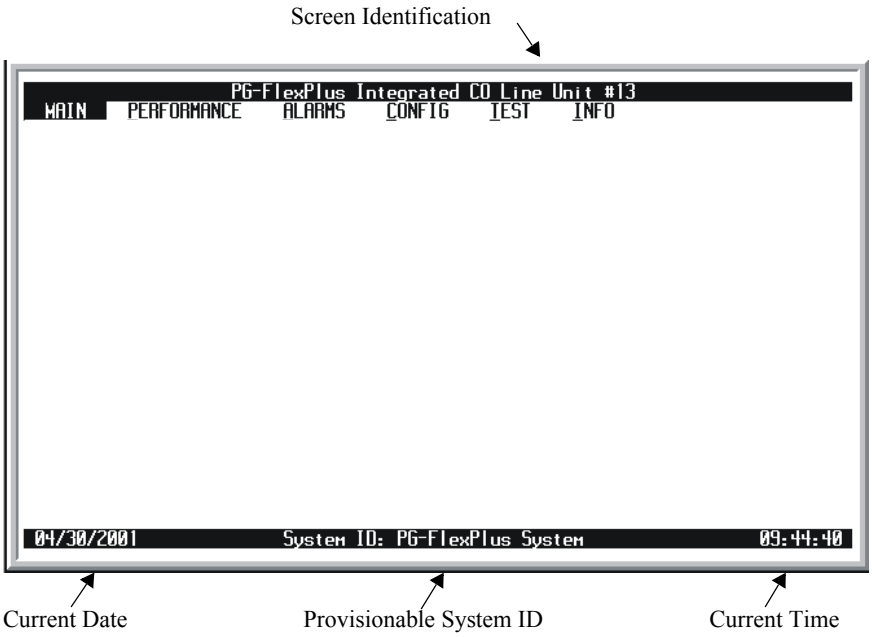

Figure 13. *DICOLU Main Menu*

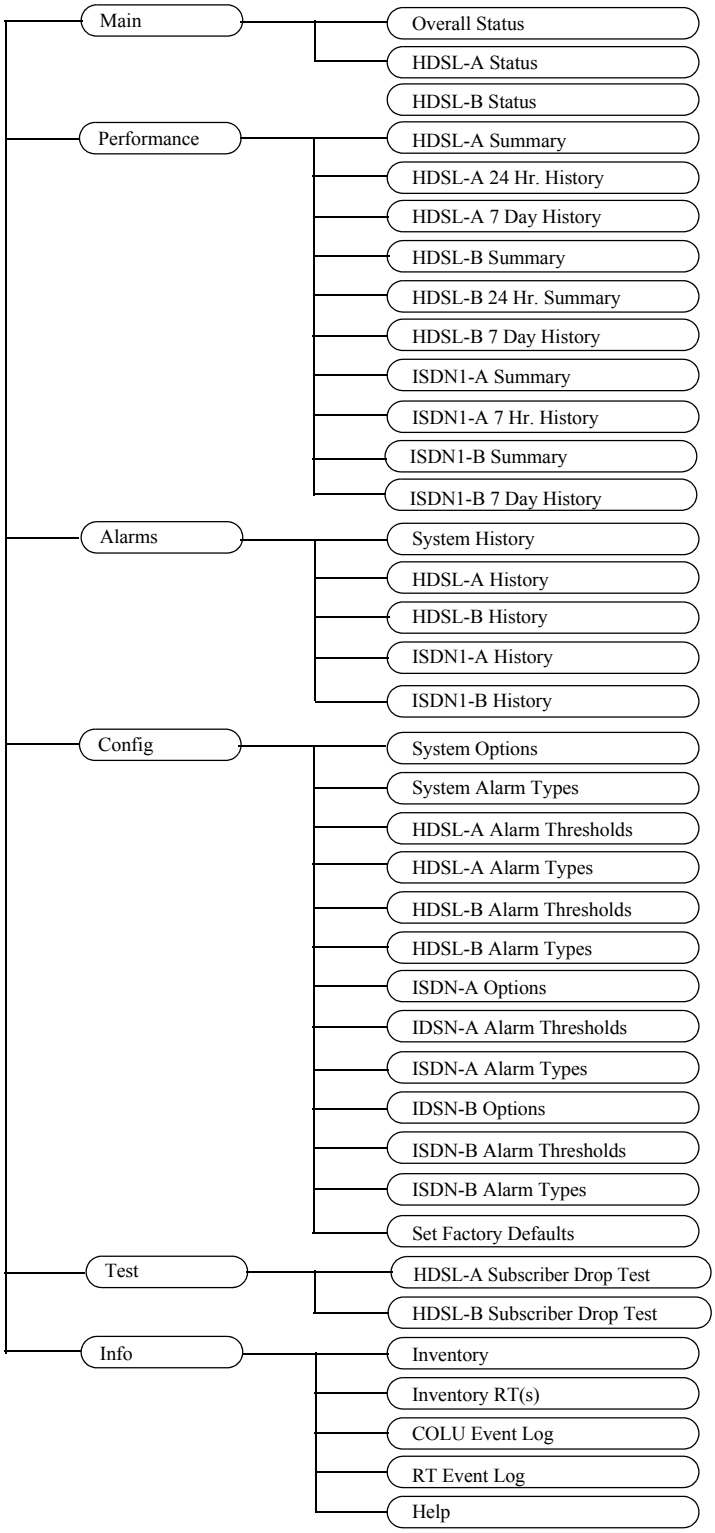

Figure 14. *DICOLU Menu Structure*

ISDN services are available in the PLL-735 List 2 and List 3 units only.

MAIN SUBMENU

The Main submenu provides access to a summary of the overall status of the unit, and an overall view of the individual unit status.

Some screens illustrated in this document may be slightly different than what may appear on the craft interface terminal. These adjustments are related to individual software installations.

1 Select *MAIN* and press **ENTER** to view the submenu:

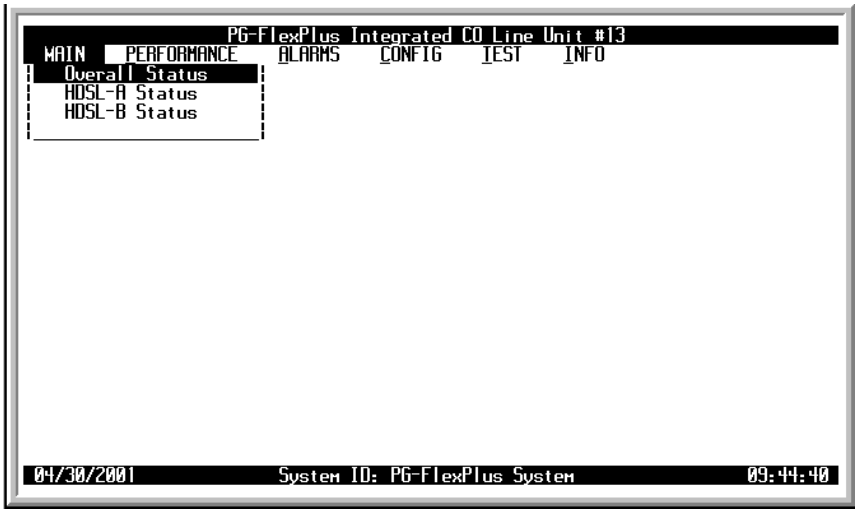

Figure 15. *Main Submenu*

2 Press **ESC** to return to the DICOLU main menu or CTRL + **R** to return to the PAU/PMU main menu.

Overall Status Screen

This screen details the performance condition of the DICOLU and RT. Table 6, "Overall Status," on page 21 defines the conditions that appear in the HDSL, Performance and Alarms Status fields.

1 Select the *Overall Status* option and press **ENTER** to view the screen:

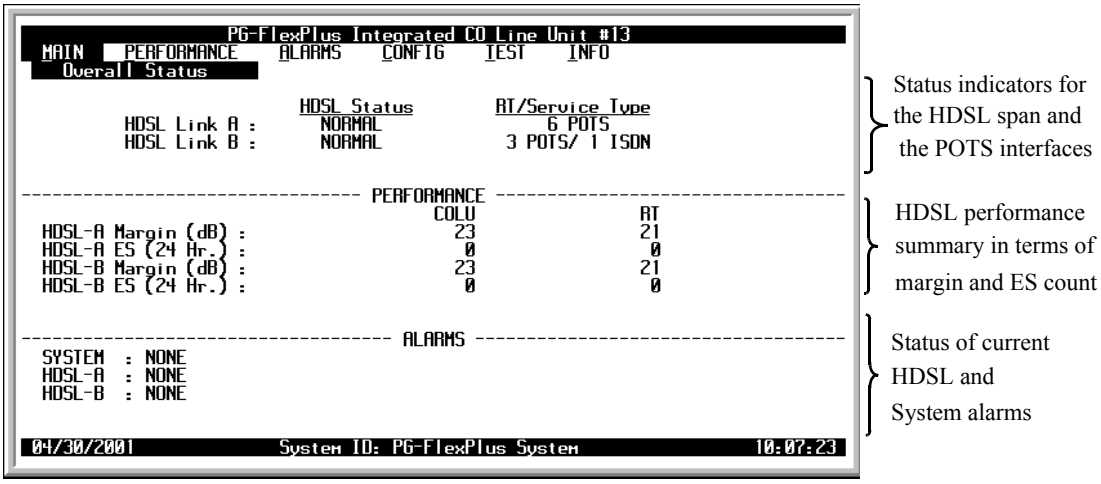

Figure 16. *Overall Status Screen*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu. Refer to the Performance and Alarms submenu screens for a detailed description of data displayed in these areas.

Table 6. *Overall Status*

State	Description
HDSL Status	
HDSL Link Down	HDSL link is down and System is not in Metallic Fallback.
Start up	System in start up mode where the HDSL link is acquiring synchronization.
Normal	System running normal where the HDSL link is synchronized and speech and signaling data are flowing between the DICOLU and the RTs.
Performance	
HDSL - A Margin (dB)	Summary of the A Margin in dB values.
HDSL - A ES (24 Hr.)	Summary of Errored Seconds occurring on A.
HDSL - B Margin (dB)	Summary of the B Margin in dB values.
HDSL - B ES (24 Hr.)	Summary of Errored Seconds occurring on B.
Alarms	
System	Summary of types of Active alarms.
HDSL - A	Summary of types of Active alarms.
HDSL - B	Summary of types of Active alarms.

HDSL-A and HDSL-B Status Screens

This screen details the performance condition of the DICOLU and RT. The HDSL-B screen is in this same format. Table 7, "Channel Status," on page 23 describes the conditions that appear in the HDSL-A Status and HDSL-B Status screens

1 Select the *HDSL-A Status* option or *HDSL-B Status* option and press **ENTER** to view the screen:

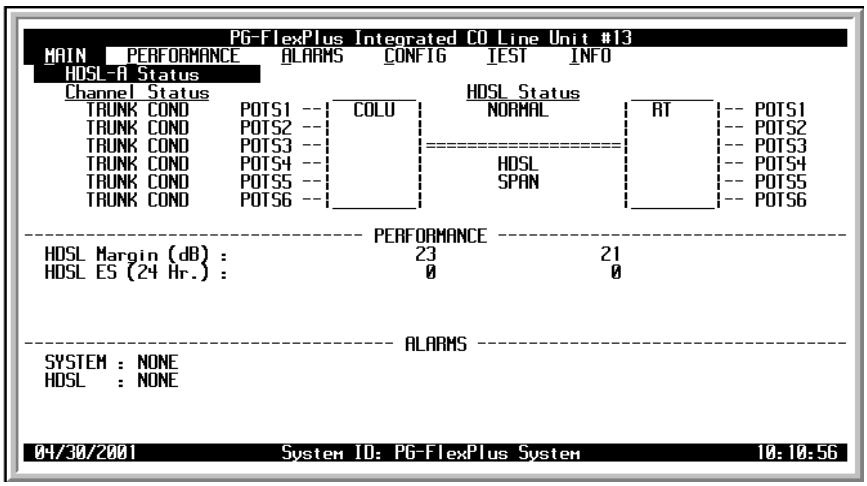

Figure 17. *HDSL-A Status Screen*

2 Press ESC to return to the DICOLU main menu, or CTRL + R to return to the PAU/PMU main menu. Refer to the Performance and Alarms submenu screens for a detailed description of data displayed in these areas.

Table 7. *Channel Status*

State	Description
HDSL Status	
HDSL LINK DOWN	HDSL link is down.
START-UP	HDSL link is acquiring synchronization.
NORMAL	HDSL link is synchronized.
Channel Status	
IDLE	CO battery detected and line is on-hook at RT.
BUSY	Line is off-hook at RT.
RINGING	Line is ringing.
TEST	Testing is being done on line.
OPEN	No CO battery detected.
FALLBACK	HDSL circuit has reverted to POTS service for line 1.
NOT PROVISIONED	No active PMX is installed.
TRUNK CONDITION	Forced line condition.
IDLE	CO battery detected, line is on-hook at RT and the line is in ground start mode.
BUSY	Line is off-hook at Stand the line is in ground start mode.
RINGING	Line is ringing and the line is in ground start mode.
TEST	Testing is being done on line and the line is in ground start mode.
OPEN	No CO battery detected and the line is in ground start mode.

PERFORMANCE SUBMENU

The Performance submenu provides access to the DICOLU history and performance summary screens. The DICOLU List 2 and List 3 support ISDN functions and would appear in this submenu.

1 Select *PERFORMANCE* and press **ENTER** to display the submenu:

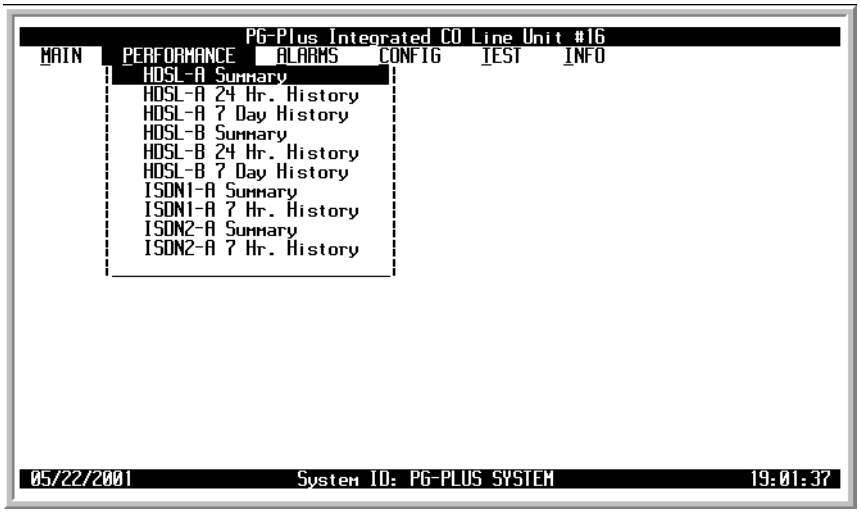

Figure 18. *Performance Submenu*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

HDSL-A and HDSL-B Summary Screens

The following screen depicts a summary of the COLU and RT HDSL performance in terms of the margin and ES count. Use the options to reset the minimum and maximum margin values for the selected RT and DICOLU. The HDSL-B screen displays the data for the HDSL-B connection in this same format.

1 Select the *HDSL-A Summary* option or *HDSL-B Summary* option and press **ENTER** to view the screen. The date and time of the last reset of the margin values for the selected RT display at the bottom of the screen:

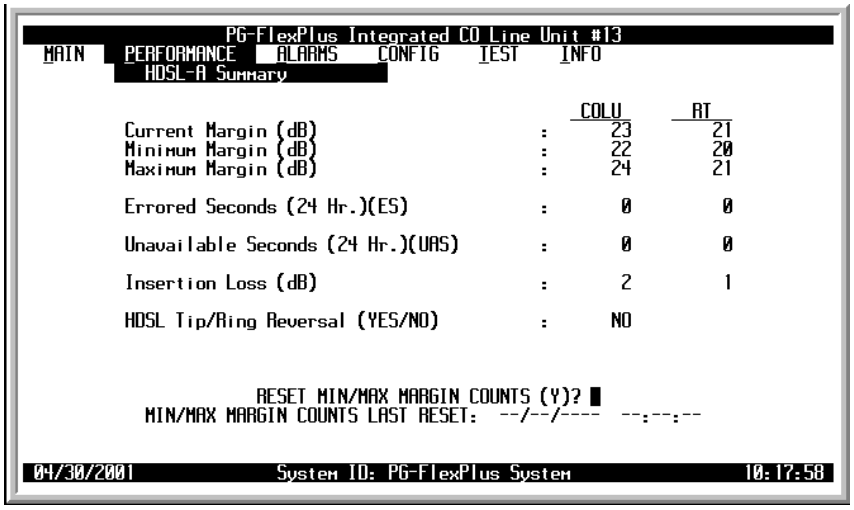

Figure 19. *HDSL-A Summary Screen*

2 Type **Y** at the `Reset MIN/MAX Margin Counts (Y)?` prompt to reset the counts.

The date and time of the last reset displays at the bottom of the screen.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

HDSL-A and HDSL-B 24 Hour History Screens

This screen shows twenty-four hours backwards from the current time of HDSL performance history for the DICOLU and the selected RT. The information displayed includes ES counts, UAS counts, and the validity of the values. The HDSL-B screen displays the data for the HDSL-B connection in this same format.

1 Select the *HDSL-A 24 hr. History* option or *HDSL-B 24 Hr. History* option and press **ENTER** to view the screen:

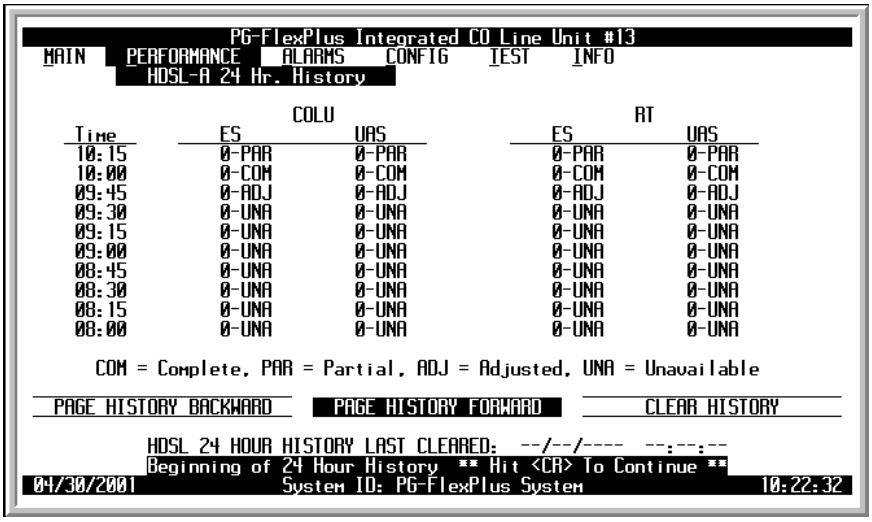

Figure 20. *HDSL-A 24 Hr. History Screen*

If you have just installed this card, and use the Page History Forward button, an error message flashes at the bottom of the screen:

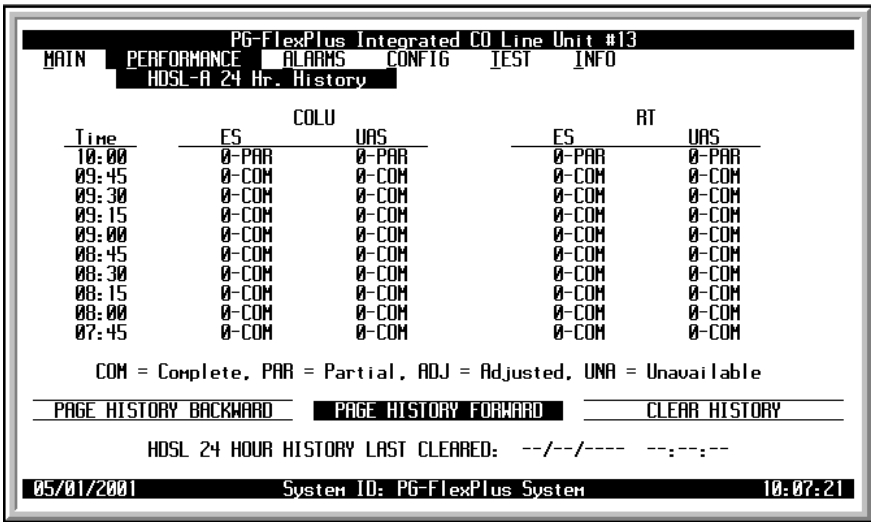

Figure 21. *HDSL-A 24 Hr. History Page History Forward Screen*

The current 15-minute interval information shows the real-time updates. The DICOLU derives the DICOLU and RT ES and UAS performance parameters, which have the valid field values of:

- Unavailable: The system has not run long enough to fill this register.

- Partial: Data is being collected for this register.
- Complete: Data is saved in the history register for the complete interval.
- Adjusted: The time or date has been changed on the system during the interval.

2 Select a paging button and press **ENTER** to scroll through all ninety-six 15-minute intervals.

3 Select the Clear History button and press **ENTER** to clear the history.

The date and time of the last clearance of the history displays at the bottom of the screen.

If there are active alarms associated with the current 24-hour performance history information, those alarms become inactive when the 24-hour performance history is cleared. The date and time the 24-hour performance history was last cleared appears at the bottom of the screen.

4 Press **ESC** to return to the DICOLU main menu, or **CTRL** + **R** to return to the PAU/PMU main menu.

HDSL-A and HDSL-B 7 Day History Screens

This screen shows seven days of COLU and RT performance history plus the current days accumulated performance information. The information displayed includes ES counts, UAS counts, and the validity of the values. The HDSL-B screen displays the data for the HDSL-B connection in this same format.

1 Select the *HDSL-A 7 Day History* option or *HDSL-B 7 Day History* option and press **ENTER** to view the screen:

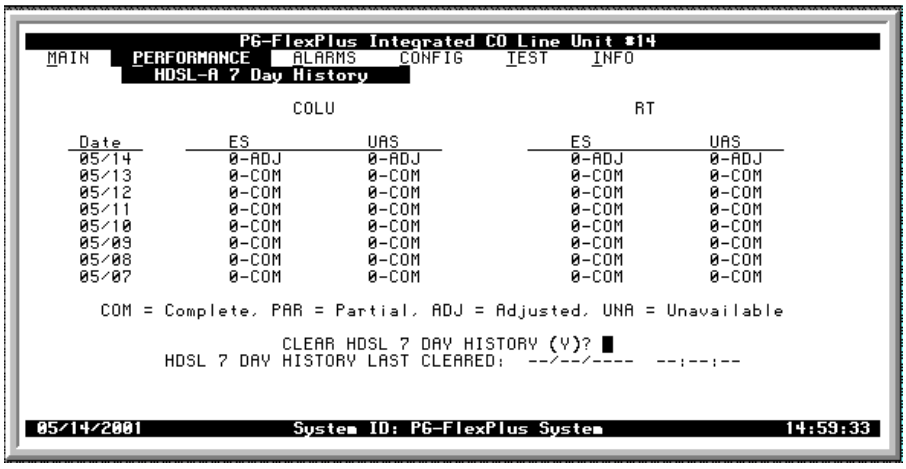

Figure 22. *HDSL-A 7 Day History Screen*

If you have just installed this card, and use the Page History Forward button, an error message flashes at the bottom of the screen.

The current 15-minute interval information shows the real-time updates. The DICOLU derives the DICOLU and RT ES and UAS performance parameters, which have the valid field values of:

- Unavailable: The system has not run long enough to fill this register.
- Partial: Data is being collected for this register.
- Complete: Data is saved in the history register for the complete interval.
- Adjusted: The time or date has been changed on the system during the interval.

2 Select a paging button and press **ENTER** to scroll through all ninety-six 15-minute intervals.

3 Select the Clear History button and press **ENTER** to clear the history.

The date and time of the last clearance of the history displays at the bottom of the screen.

If there are active alarms associated with the current 7 day history information, those alarms become inactive when the 7 day performance history is cleared. The date and time the 7 day performance history was last cleared appears at the bottom of the screen.

4 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

ISDN1-A and ISDN1-B Summary Screens

The following screen depicts a summary of the COLU and RT ISDN performance in terms of the hourly SES, ES, and BE counts, and daily ES and SES counts. The ISDN1-A screen displays the data for the ISDN1-A connection in this same format.

PLL-735 List 1 does not support ISDN services.

1 Select the *ISDN1-A Summary* option or *IDSN1-B Summary* option and press **ENTER** to view the screen. The date and time of the last reset of the IDSN counts display at the bottom of the screen:

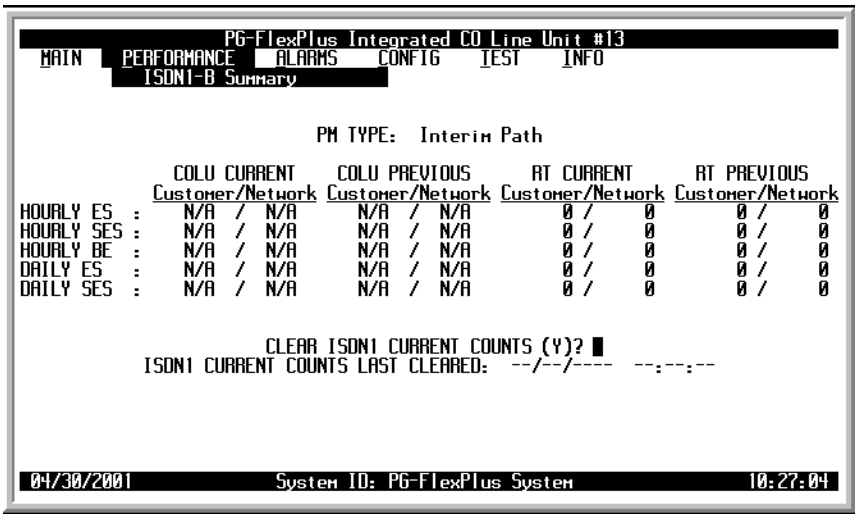

Figure 23. *IDSN1-B Summary Screen*

The DICOLU derives the hourly ES, SES, BE performance and the daily ES and SES performance parameters for both the DICOLU and the selected RT.

2 Type **Y** at the `CLEAR ISDN1 CURRENT COUNTS (Y)?` prompt to clear the counts.

The date and time of the last clearing displays at the bottom of the screen.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

ISDN1-A and ISDN1-B 7 Hr. History Screens

The following screen shows seven hours backwards from the current time of ISDN performance history for the DICOLU and the selected RT. The ISDN1-A screen displays, in this same format, the data for the ISDN1-A connection.

PLL-735 List 1 does not support ISDN services.

1 Select the *ISDN1-A 7 Hr. History* option or *ISDN1-B 7 Hr. History* option and press **ENTER** to view the screen:

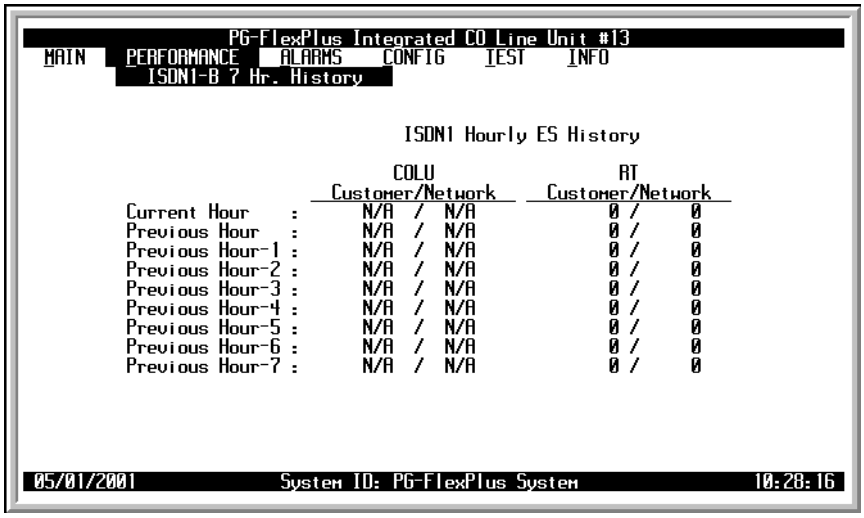

Figure 24. *ISDN-B 7 Hr. History Screen*

The DICOLU derives the ES performance parameters for the DICOLU and RT.

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

ALARMS SUBMENU

The DICOLU detects and reports HDSL, POTS, ISDN, and system related alarmed events to the PAU or PMU.

PLL-735 List 1 does not support ISDN services.

1 Select *ALARMS* from the main menu and press **ENTER** to display the submenu:

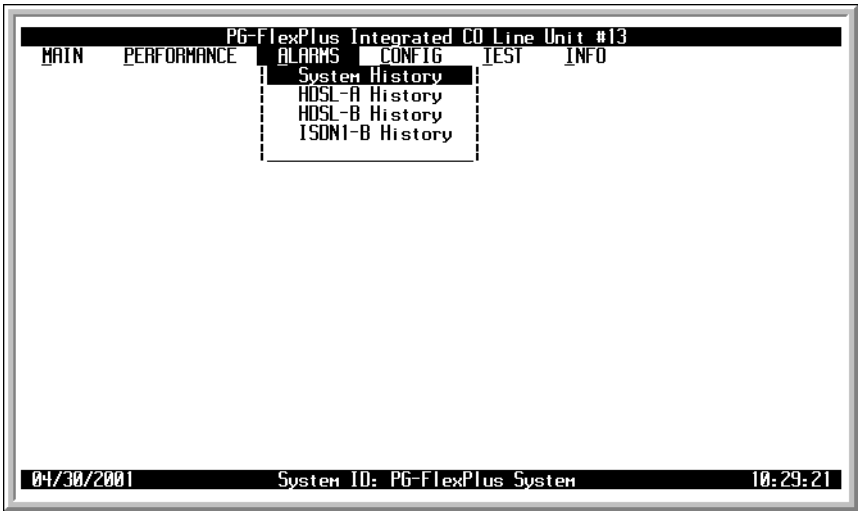

Figure 25. *Alarms Submenu*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

System History Screen

This screen shows the system alarm history. The alarms and default values are defined in Table 9, "System Alarm Types," on page 37. At this screen you see the results of the alarms set in Figure 31,"System Alarm Types Screen," on page 37.

1 Select the *System History* option and press **ENTER** to view the screen:

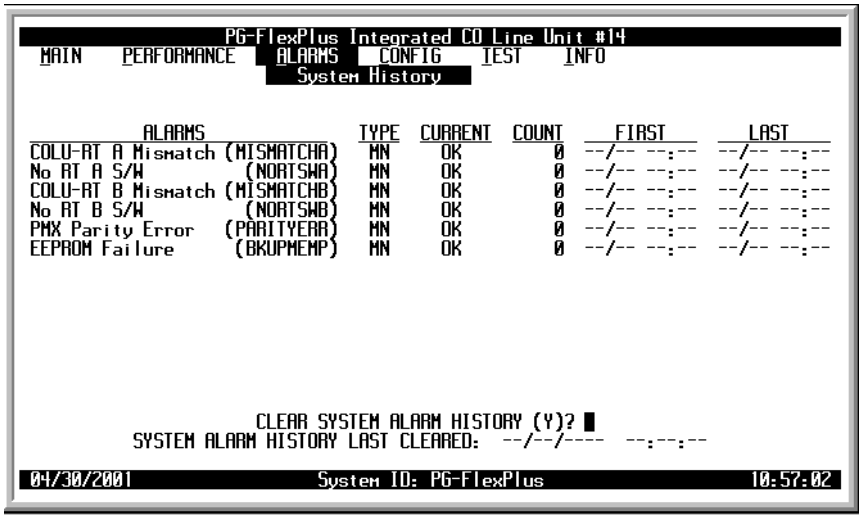

Figure 26. *System History Screen*

If no alarms are not present, the word OK displays.

The date and time of the last clearance of the history displays at the bottom of the screen. The current information shows real-time updates.

2 If you want to clear the history, type **Y** at the `Clear System Alarm History (Y)?` prompt.

Clearing the system alarm history does not clear the current alarms.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

HDSL-A and HDSL-B History Screens

The HDSL history maintained on the DICOLU contains a count of the number of times each alarm occurred, the time and date of the first and last occurrence, the provisioned notification type, and the current status. Here you view the results of the alarms set at the section, "HDSL-A and HDSL-B Alarm Types Screens" on page 39. The HDSL-B screen displays the data for the HDSL-B connection in this same format.

1 Select the *HDSL-A History* option or *HDSL-B History* option and press **ENTER** to view the screen:

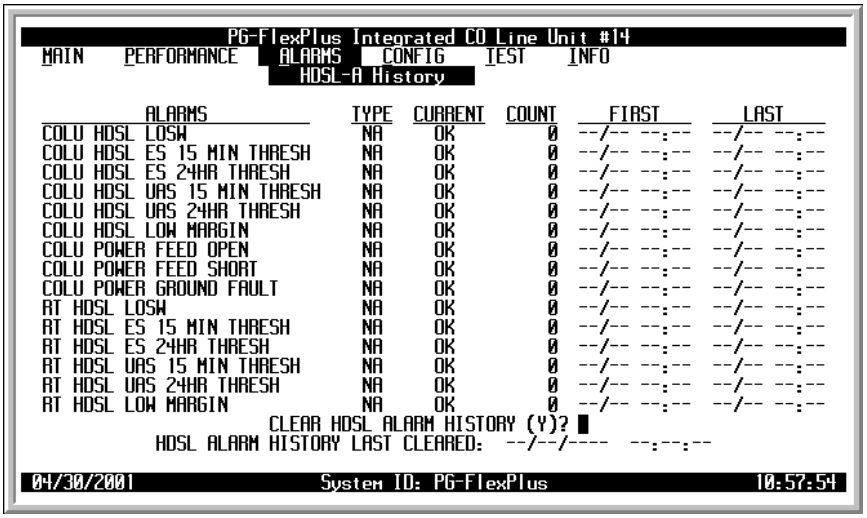

Figure 27. *HDSL-A History Screen*

If no alarms are present, the word OK displays.

2 Type **Y** at the `Clear HDSL Alarm History (Y)?` prompt to clear the information.

If there is an active alarm, then the count is set to 1 and the value in the Last date and time field is set to the First date and time field.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

ISDN1-A and ISDN1-B History Screens

The ISDN1-A and ISDN1-B histories are maintained on the DICOLU contains a count of the number of times each alarm occurred, the time and date of the first and last occurrence, the provisioned notification type, and the current status. Here you view the results of the alarms set at the Configuration "ISDN-A and ISDN-B Alarm Types Screens" on page 45. The ISDN-A screen displays the data for the ISDN1-A connection in this same format.

1 Select the *ISDN1-A History* option or *ISDN1-B History* option and press **ENTER** to view the screen:

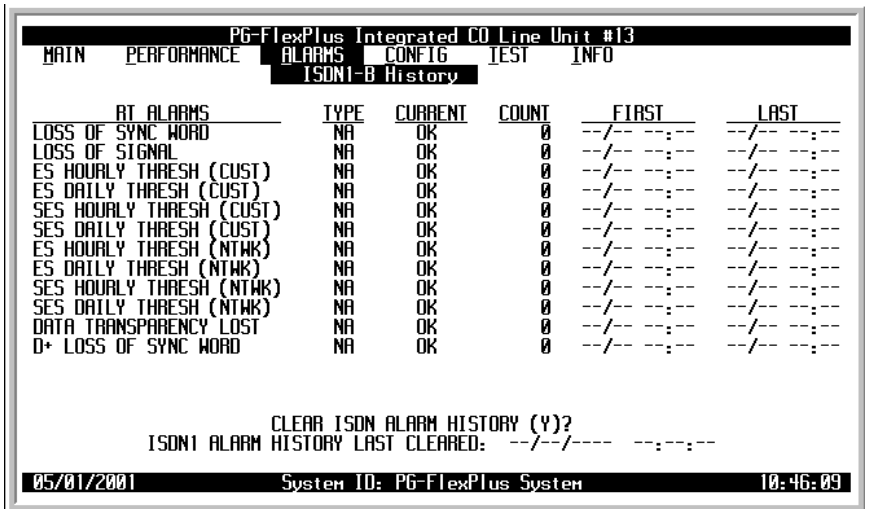

Figure 28. *ISDN1-B History Screen*

If no alarms are present, the word OK displays.

2 Type **Y** at the `CLEAR ISDN ALARM HISTORY (Y)?` prompt to clear the information.

Clearing the alarm history clears the RT and the DICOLU alarm history, regardless of whether you clear it from the DICOLU or the RT page of the history screen. If there is an active alarm, then the count is set to 1 and the value in the Last date and time field is set to the First date and time field.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

CONFIGURATION SUBMENU

Provides access to system provisioning screens, and an easy means of resetting all options to factory defaults. All system provisioning options are saved in nonvolatile memory.

PLL-735 List 1 does not support ISDN services.

The defaults for Lists 1 and 2 are different from List 3, although functionally identical.

1 Select *CONFIG* from the main menu and press **ENTER** to display the submenu:

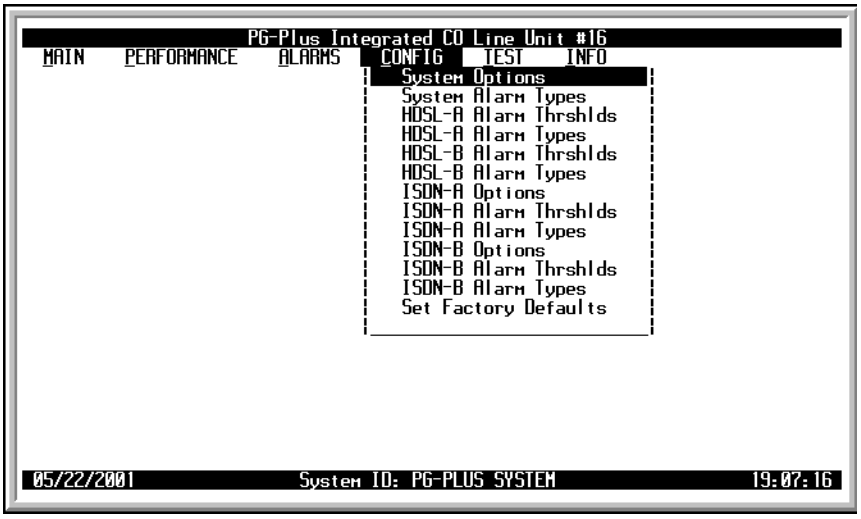

Figure 29. *Configuration Submenu Screen*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

System Options Screen

System Options screen allows the provisioning of options such as ringing frequency and a System ID. Table 8, "System Options Configuration Fields," on page 36 shows the configured system option and the factory default value. You can view the results of these settings from the "Overall Status Screen" on page 21.

1 Select the *System Options* line and press ENTER to view the screen:

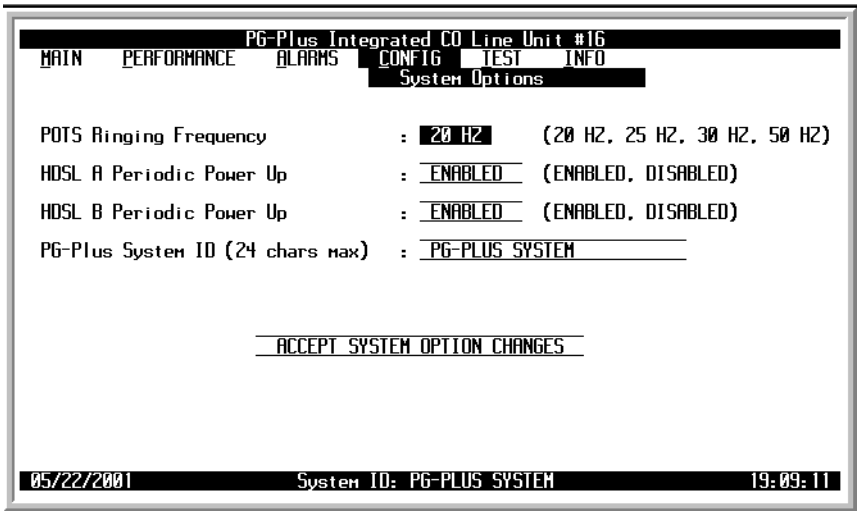

Figure 30. *System Options Screen*

2 Select the desired field and press the SPACEBAR to toggle to the desired value, or use a directional key to move to the next option.

3 Press TAB to move to the Accept System Option Changes button, and press ENTER to accept the changes.

4 Press ESC to return to the DICOLU main screen, or CTRL + R to return to the PAU/PMU main menu.

Table 8. *System Options Configuration Fields*

Options	Description	List 1 and 2 Defaults	List 3 Default
POTS Ringing Frequency	The ringing frequency sent from the RT to the subscriber. Possible values include 20 Hz, 25 Hz, 30 Hz, and 50 Hz.	20 Hz	20 Hz
HDSL A Periodic Power Up	When Enabled, the system periodically attempts to power-up the RT. Possible values are Enabled and Disabled.	ENABLED	ENABLED
HDSL B Periodic Power Up	When Enabled, the system periodically attempts to power-up the RT. Possible values are Enabled and Disabled.	ENABLED	ENABLED
PG-Plus System ID	Configurable identification string for system. This string can be up to 24 characters. Because the System ID is visible at every COLU screen, it is easy to know which COLU screens are displayed. There are no special rules for changing the System ID. Any printable character, including space, is valid.	PG-FlexPlus System	PG-FlexPlus System

System Alarm Types Screen

Allows the provisioning of the alarm types of all system alarms. Table 9, "System Alarm Types," on page 37, shows the System Alarm fields and the default settings. You can view the results of these settings from the "Overall Status Screen" on page 21.

1 Select the *System Alarm Types* option and press ENTER to view the screen:

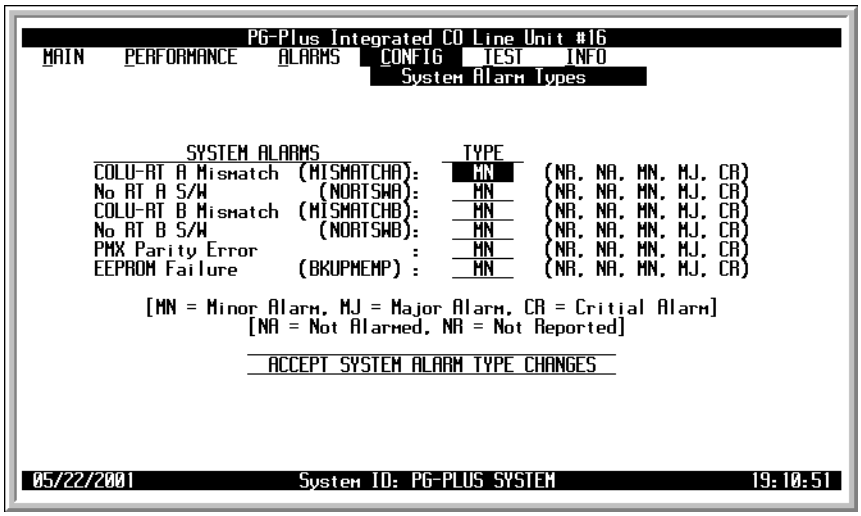

Figure 31. *System Alarm Types Screen*

2 With one of the alarm types selected, use the SPACEBAR to toggle to the desired value for the Alarm Type, then press a directional keys to move to the next option.

3 When you have made all the desired changes, press a directional key to move to the Accept System Alarm Types Changes button, and press ENTER to accept the changes.

4 Press ESC to return to the DICOLU main screen, or CTRL + R to return to the PAU/PMU main menu.

Table 9. *System Alarm Types*

Alarms	Description	List 1 and 2 Defaults	List 3 Default
MISMATCHA	Incompatible RT A unit has been installed.	MN	MN
NORTSWA	RT A has no application software and is awaiting software download.	MN	MN
MISMATCHB	Incompatible RT B unit has been installed.	MN	MN
NORTSWB	RT B has no application software and is awaiting software download.	MN	MN
PMX Parity Error	The DICOLU implements parity generation and detection on the data transferred between the PMX and the COLUs on the backplane. If parity errors are detected coming from a PMX, an alarm is generated and all circuits are placed in a Trunk-Conditioned state.	MN	MN
BKUPMEMP	COLU memory checksum is incorrect (EPROM Failure).	MN	MN

HDSL-A and HDSL-B Alarm Thresholds Screens

Provides a means to provision the threshold crossing values for the 15 minute and 24-hour ES and UAS counts and low margin value for the HDSL-A RTs. Table 10, "HDSL Alarm Threshold Fields," on page 38 lists the fields of the HDSL-A Alarm Thresholds and the default factory values. You can view the results of these settings from the "Performance Submenu" on page 24. The HDSL-B screen displays the data for the HDSL-B connection in this same format.

1 Select the *HDSL-A Thrshlds* option or *HDSL-B Alarm Thrshlds* option and press **ENTER** to view the screen:

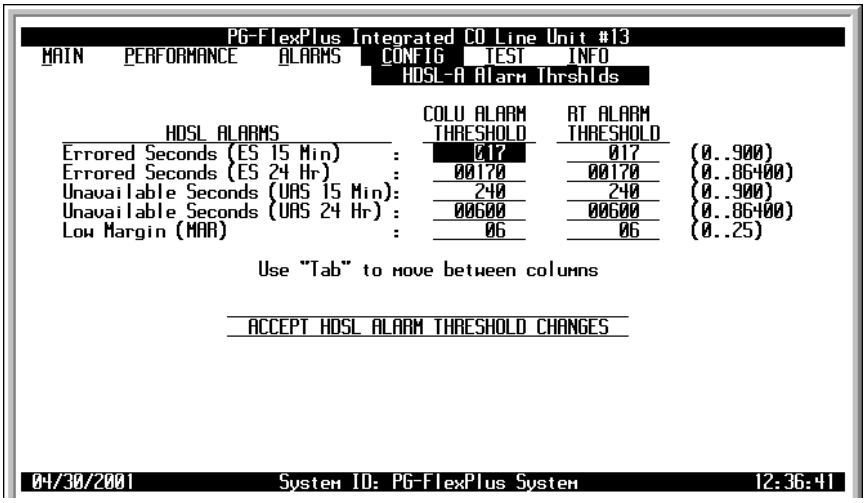

Figure 32. *HDSL-A Alarm Thresholds Screen*

2 With the desired field selected, type in the value for that field.

3 Press a directional key to move up or down the current column, or press **TAB** to move to the next column. Continue until you have made all desired changes.

4 Move to the Accept HDSL Alarm Thresholds Changes button, press **ENTER** to accept the changes.

5 Press **ESC** to return to the DICOLU main screen, or **CTRL**+**R** to return to the PAU/PMU main menu.

Table 10. *HDSL Alarm Threshold Fields*

Thresholds	Description	List 1 and 2 Defaults	List 3 Defaults
MAR	Value at which alarm is set active if margin drops equal to or less than this threshold. Possible HDSL low margin threshold values include any values from 0 through 15.	6	6
ES-15 MIN	Value for the HDSL 15 minute interval ES alarm. Possible threshold values include any number from 0 to 900.	17	8
ES -24 HR	Value for the HDSL 24 hour interval ES alarm. Possible threshold values include any number from 0 to 86400.	170	26
UAS-15 MIN	Threshold value for the HDSL 15 minute interval UAS alarm. Possible threshold values include any number from 0 to 900.	240	1
UAS-24 HR	Threshold value for the HDSL 24 hour interval UAS alarm. Possible values include any number from 0 to 86400.	600	1

HDSL-A and HDSL-B Alarm Types Screens

These screens allow the provisioning of the alarm types for all HDSL Alarms for the HDSL RTs. Table 11, "Alarm Reports," on page 39 lists the Alarm Reports and Table 12, "HDSL Alarms," on page 38, shows the HDSL-A Alarms, the possible alarm Types, and the default settings. View the results of these settings at the "HDSL-A and HDSL-B Summary Screens" on page 25. The HDSL-B screen displays the data for the HDSL-B connection in this same format.

1 Select the *HDSL-A Alarm Types* option or *HDSL-B Alarm Types* option and press **ENTER** to view the screen:

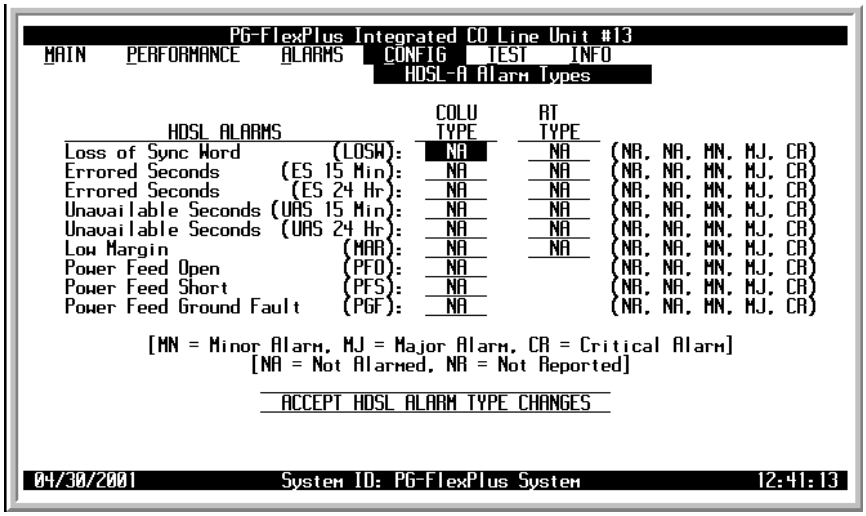

Figure 33. *HDSL-A Alarm Types Summary Screen*

2 Select the desired field and press the **SPACEBAR** to toggle to the desired value.

3 Press a directional key to move up or down the current column, or press **TAB** to move to the next column. Continue until you have made all desired changes.

4 Move to the Accept HDSL Alarm Type Changes button, and press **ENTER** to accept the changes.

5 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

Table 11. *Alarm Reports*

Settings	PAU/PMU Reports	Fault LED Affected	Main Summary Listing	Alarm History Updated
CR	Yes	Yes	Yes	Yes
MJ	Yes	Yes	Yes	Yes
MN	Yes	Yes	Yes	Yes
NA	No	No	No	No
NR	No	Yes	Yes	Yes

Table 12. *HDSL Alarms*

Types	Description	List 1 and 2 Defaults	List 3 Defaults
LOSW	HDSL link has lost synchronization.	MN	MN
ES -15 MIN	Active if the 15 minute ES count equals or exceeds the threshold in the current 15 minute interval.	MN	NA
ES-24 HR	Active if the count equals or exceeds the threshold in the current 24 hour interval.	MN	NA
UAS-15 MIN	Active if the count equals or exceeds the threshold in the current 15 minute interval.	MN	NA
UAS-24 HR	Active if the count equals or exceeds the threshold in the current 24 hour interval.	MN	NA
MAR	Active if the margin equals or drops below the threshold.	MN	NR
PFO	Open circuit detected on the HDSL span.	MN	MN
PFS	Short circuit detected on the HDSL span.	MN	MN
PGF	Ground fault condition detected on the HDSL span.	MN	MN

ISDN-A and ISDN-B Options Screens

These screens provide means to configure the ISDN parameters. The Sealing Current fields allows the current to be turned on or off between the RT and the CPE. The EOC Mode field allows the EOC processing type to be selected. The COLU and ISDN-A RT SES counts are the number of ISDN BE allowed before SES count is incremented. View the results of these settings at the "Overall Status Screen" on page 21. The ISDN-B screen displays the data for the ISDN-B connection in this same format.

PLL-735 List 1 does not support ISDN services.

1 Select the *ISDN-A Options* or *ISDN-B Options* line and press **ENTER** to view the screen:

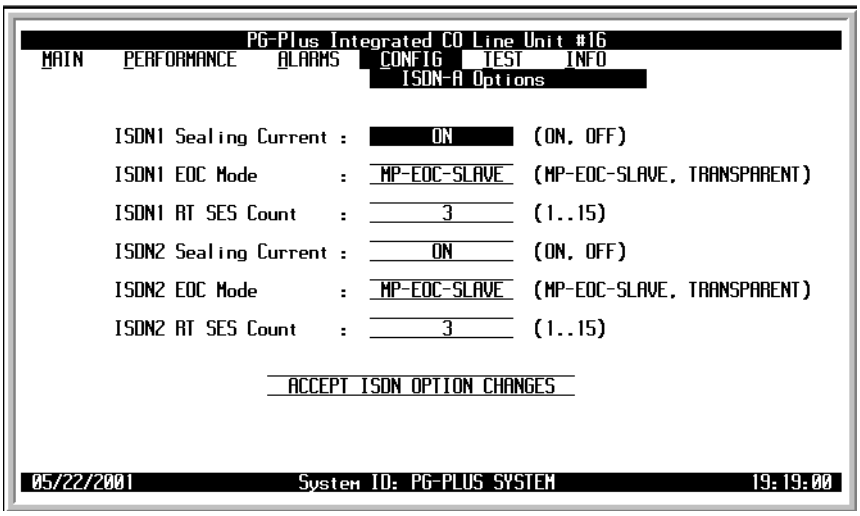

Figure 34. *ISDN-A Options Screen*

2 Select the desired field and press the **SPACEBAR** to toggle to the desired value, or use a directional key to move to the next option.

3 Press **TAB** to move to the Accept ISDN Option Changes button, and press **ENTER** to accept the changes.

4 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

Table 13. *ISDN-A/B Options Fields*

Options	Description	List 1 and 2 Defaults	List 3 Defaults
ISDN1 Sealing Current	Sets whether or not ISDN sealing current is sent from RT to subscriber CPE. A constant current of approximately 5 mA is applied to the ISDN subscriber loop. Possible values are ON or OFF.	ON	OFF
ISDN1 EOC Mode	This field allows the EOC processing type to be selected. Possible values are MP-EOC-SLAVE and TRANSPARENT. In MP-EOC-SLAVE mode, the COLU interacts with the income data before it passes it on to the RT. In TRANSPARENT mode, the COLU passes the incoming data directly through to the RT with no interaction involved.	MP-EOC-SLAVE	TRANSPARENT
ISDN1 RT SES Count	COLU/RT Customer and Network SES - An ISDN SES alarm is generated if the accumulated hourly SES count at the COLU/RT reaches or exceeds this threshold value. A single threshold value is used for thresholding errors in the customer or network direction. The range of values is from 1 to 15.	3	4
ISDN2 Sealing Current	No sealing current is applied to any ISDN subscriber loop. A constant current of approximately 5 mA is applied to the ISDN subscriber loop.	ON	OFF
ISDN2 EOC Mode	EOC messages are decoded and re-transmitted within the PG-Plus system. EOC messages are not decoded and are passed through the PG-Flex system transparently.	MP-EOC-SLAVE	TRANSPARENT
ISDN2 RT SES Count 1 to 15	The number of ISDN bit errors before the SES count is incremented.	3	4

ISDN-A and ISDN-B Alarm Thresholds Screens

These screens provide a means to provision the threshold crossing values for the hourly and daily ES and UAS counts for the ISDN-A RTs. Table 14, "ISDN-A/B Alarm Threshold Fields," on page 44, lists the fields of the ISDN Alarm Thresholds and the default factory values. View the results of these settings at the "HDSL-A and HDSL-B Status Screens" on page 22. The ISDN-B screen displays the data for the ISDN-B connection in this same format.

PLL-735 List 1 does not support ISDN services.

1 Select the *ISDN-A Alarm Thrshlds* option and press **ENTER** to view the screen:

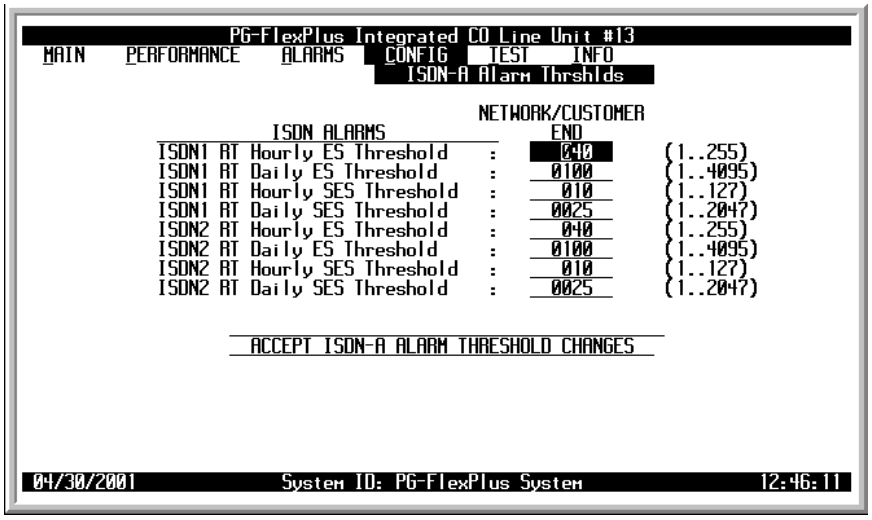

Figure 35. *ISDN-A Alarm Thresholds Screen*

2 With the desired field selected, press the **SPACEBAR** to toggle to the correct value for that field.

3 Press a directional key to move up or down the current column, or press **TAB** to move to the next column. Continue until you have made all desired changes.

4 Move to the Accept ISDN-A Alarm Thresholds Changes button, press **ENTER** to accept the changes.

5 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

Table 14. *ISDN-A/B Alarm Threshold Fields*

Threshold	Description	List 1 and 2 Defaults	List 3 Defaults
ISDN1and ISDN2 RT Hourly ES Threshold	Value for the hourly ES alarm. Possible threshold values include any number from 1 to 255.	40	40
ISDN1 and ISDN2 RT Daily ES Threshold	Value for the daily ES alarm. Possible threshold values include any number from 1 to 4095.	100	100
ISDN1 and ISDN2 RT Hourly SES Threshold	Value for the hourly SES alarm. Possible threshold values include any number from 1 to 127.	10	10
ISDN1 and ISDN2 RT Daily SES Threshold	Threshold value for the daily SES alarm. Possible threshold values include any number from 1 to 2047.	25	25

ISDN-A and ISDN-B Alarm Types Screens

These Screens allow the provisioning of the alarm types for all ISDN Alarms for the ISDN-A RTs. Table 11, "Alarm Reports," on page 39 lists the Alarm Reports and Table 15, "ISDN-A/B Alarms" on page 44, shows the ISDN-A Alarms, the possible alarm Types, and the default settings. View the results of these settings at the "System History Screen" on page 32. The ISDN-B screen displays the data for the ISDN-B connection.in this same format.

PLL-735 List 1 does not support ISDN services.

1 Select the *ISDN-A Alarm Types* option or *ISDN-B Alarm Types* option and press **ENTER** to view the screen:

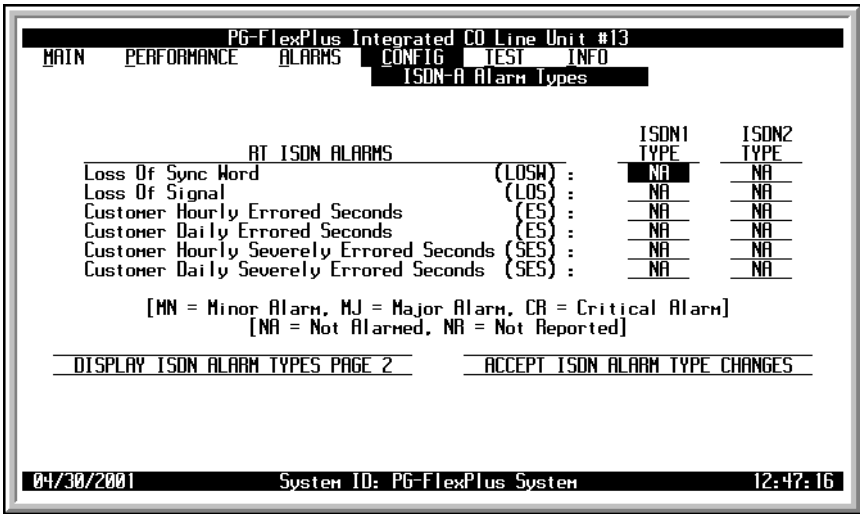

Figure 36. *ISDN-A Alarm Types Screen*

2 Select the desired field and press the **SPACEBAR** to toggle to the desired value.

3 Press a directional key to move up or down the current column, or press **TAB** to move to the next column. Continue until you have made all desired changes.

4 Select the Display ISDN Alarm Types Page 2 button to view the second page of alarm types:

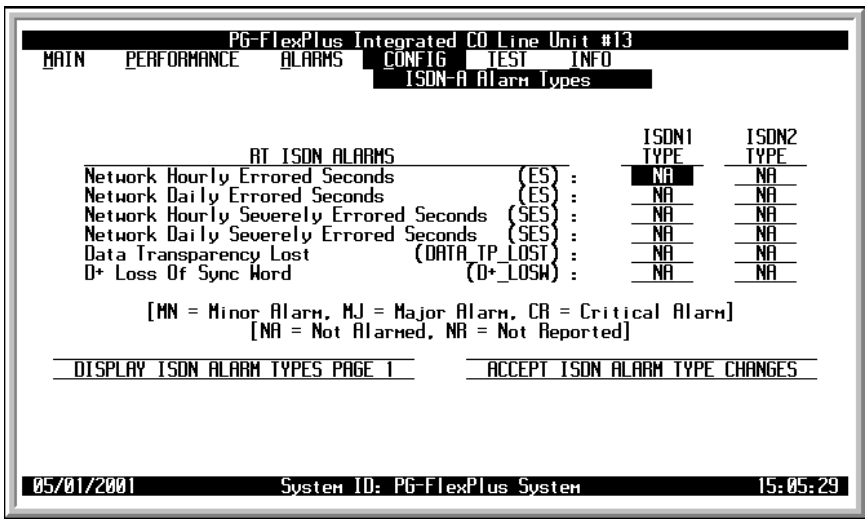

Figure 37. *ISDN-A Alarm Types Page 2 Screen*

5 Select the desired field and press the **SPACEBAR** to toggle to the desired value.

6 Press a directional key to move up or down the current column, or press **TAB** to move to the next column. Continue until you have made all desired changes.

7 Move to the Accept ISDN Alarm Type Changes button, and press **ENTER** to accept the changes.

8 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

Table 15. *ISDN-A/B Alarms*

Types (ISDN1 and ISDN2)	Description	List 1 and 2 Defaults	List 3 Defaults
Loss of Sync Word	The ISDN link has lost synchronization.	NA	NA
Lost of Signal	The ISDN link has lost the signal.	NA	NA
Customer Hourly ES	The hourly ES count in the customer direction has exceeded this threshold.	NA	NA
Customer Daily ES	The daily ES count in the customer direction has exceeded this threshold.	NA	NA
Customer Hourly SES	The hourly SES count in the customer direction has exceeded this threshold	NA	NA
Customer Daily SES	The daily SES count in the customer direction has exceeded this threshold.	NA	NA
Network Hourly ES	The hourly ES count in the network direction has exceeded this threshold.	NA	NA
Network Daily ES	The daily ES count in the network direction has exceeded this threshold.	NA	NA
Network Hourly SES	The hourly SES count in the network direction has exceeded this threshold	NA	NA

Table 15. *ISDN-A/B Alarms (Cont.)*

Types (ISDN1 and ISDN2)	Description	List 1 and 2 Defaults	List 3 Defaults
Network Daily SES	The daily SES count in the network direction has exceeded this threshold	NA	NA
Data Transparency Lost	The data transparency has been lost.	NA	NA
D+ Loss of Sync word	The sync work on the D channel has been lost.	NA	NA

Set Factory Defaults Screen

Sets all configuration data back to factory default values.

1 Select *Set Factory Defaults* and press **ENTER** to view the screen:

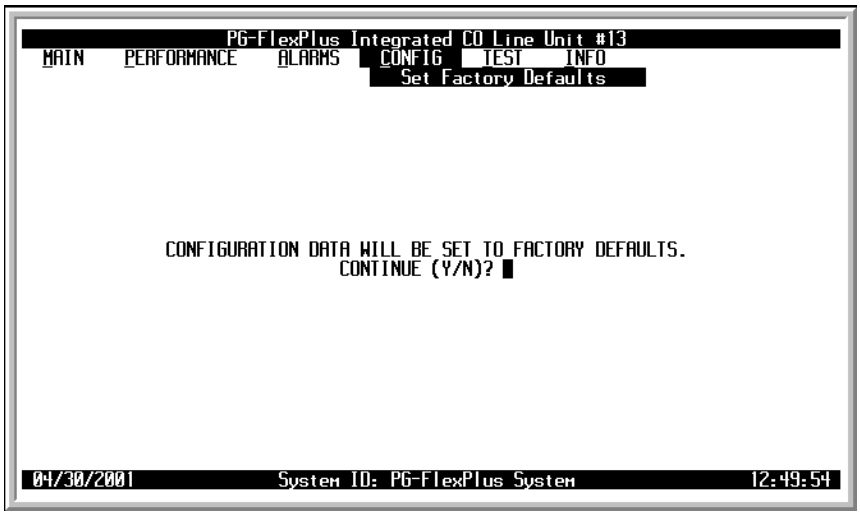

Figure 38. *Set Factory Defaults Screen*

2 Type **Y** in the field after the `CONTINUE (Y/N)?` prompt to reset the system to the Factory Default values, or **N** to maintain the current configuration defaults.

The defaults for Lists 1 and 2 are different than List 3, although functionally identical.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

TEST SUBMENU

PG-Flex*Plus* supports testing of a subscriber drop by providing a test selection from the TEST menu. The relays in the RT provide a path for performing a Subscriber Drop Test (SDT).

1 Select *TEST* from the main menu and press ENTER to display the submenu:

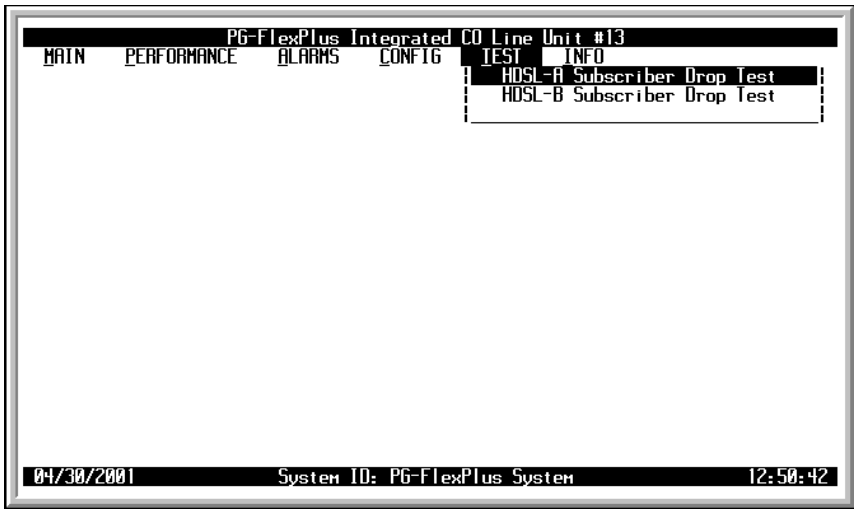

Figure 39. *TEST Submenu Screen*

2 Press ESC to return to the DICOLU main screen, or CTRL + R to return to the PAU/PMU main menu.

HDSL-A and HDSL-B SDT Screen for POTS RTs

These screens provide a path for performing a SDT.

PLL-735 List 1 does not support ISDN services.

1 Select the *HDSL-A Subscriber Drop Test* option and press **ENTER** to display the submenu:

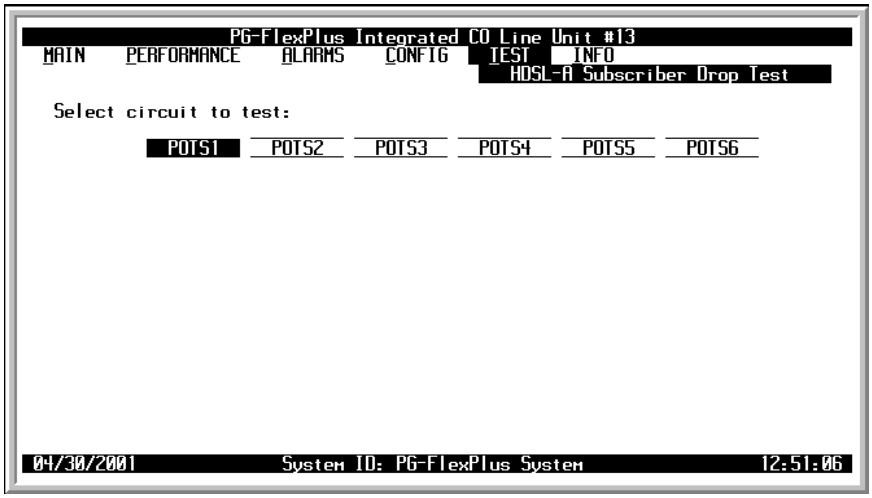

Figure 40. *HDSL-A Subscriber Drop Test Selection Screen with POTS1 Selected*

2 Select the POTS1 circuit to test and press **ENTER** to view the screen:

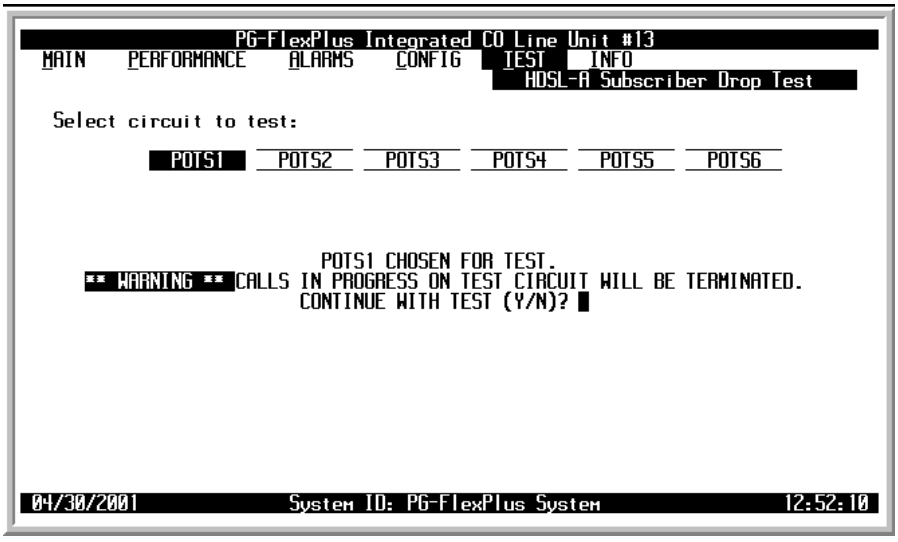

Figure 41. *POTS1 HDSL-A Subscriber Drop Test Screen*

A warning message displays, explaining that calls in progress will be disrupted. Type **Y** to continue, or **N** to cancel the test.

3 If you typed **Y** to continue the test, a message displays letting you know that a test is in progress.

4 When the tests are completed, the SDT results are displayed:

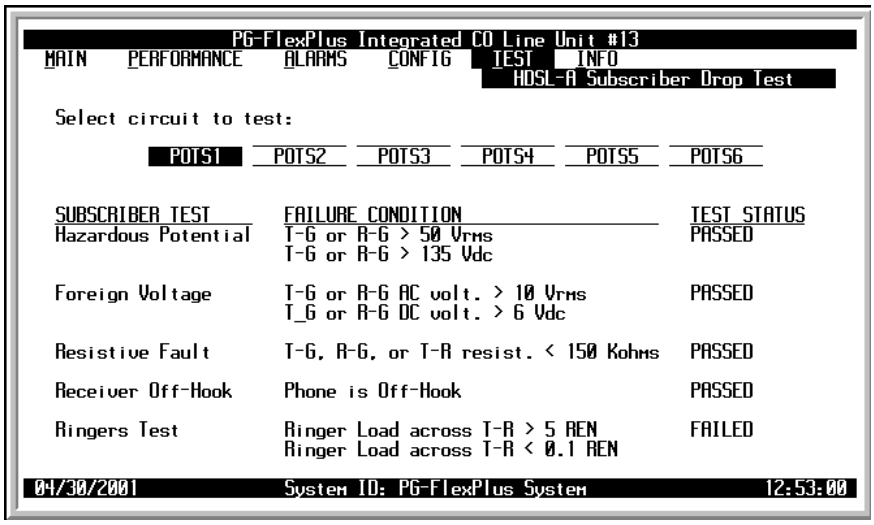

Figure 42. *POTS1 HDSL-A Subscriber Drop Test Results Screen*

5 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

HDSL-A and HDSL-B SDT Screen for ISDN RTs

Relays on the RT provide a path for performing a SDT. The results are reported to the PAU or the PMU.

PLL-735 List 1 does not support ISDN services.

1 Select the *HDSL-A Subscriber Drop Test* or *HDSL-B Subscriber Drop Test* option and press **ENTER** to display the submenu:

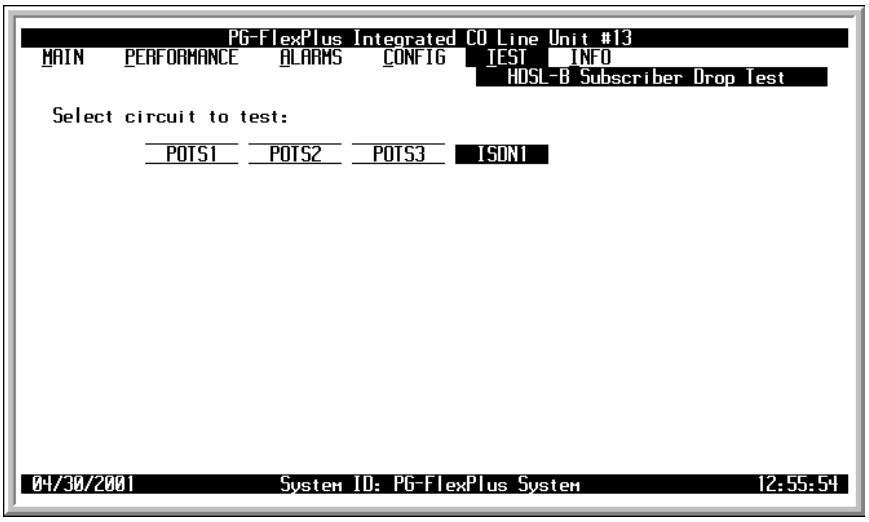

Figure 43. *HDSL-B Subscriber Drop Test Screen with IDSN1 Selected*

2 Select the IDSN1 circuit to test and press **ENTER**. A warning message displays, explaining that calls in progress will be disrupted. Type **Y** to continue, or **N** to cancel the test.

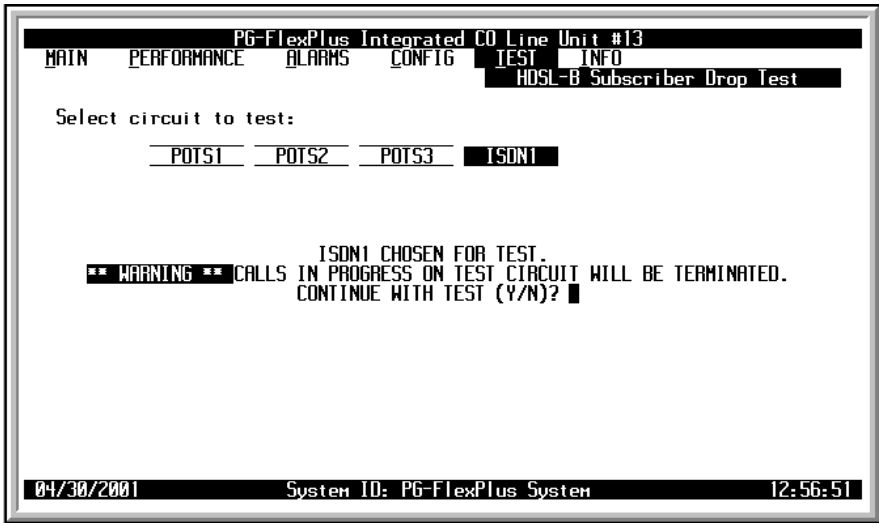

Figure 44. *ISDN1 HDSL-B Subscriber Drop Test Screen with a Warning Message Displayed*

3 If you typed **Y** to continue the test, a message displays letting you know that a test is in progress.

4 When the tests are completed, the results are displayed:

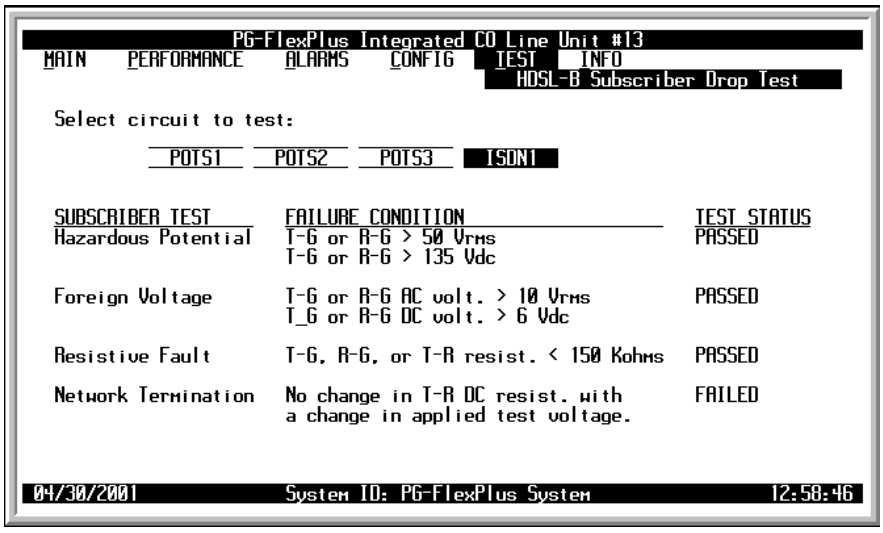

Figure 45. *IDSN1 HDSL-B Subscriber Drop Test Results Screen*

When the Network Termination portion of the test has a Status of Failed, it indicates that no modem or other data device was there to complete the circuit.

5 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

INFORMATION SUBMENU

The Information submenu provides technical information about the COLU and RTs.

1 Select *INFO* from the main menu and press **ENTER** to display the submenu:

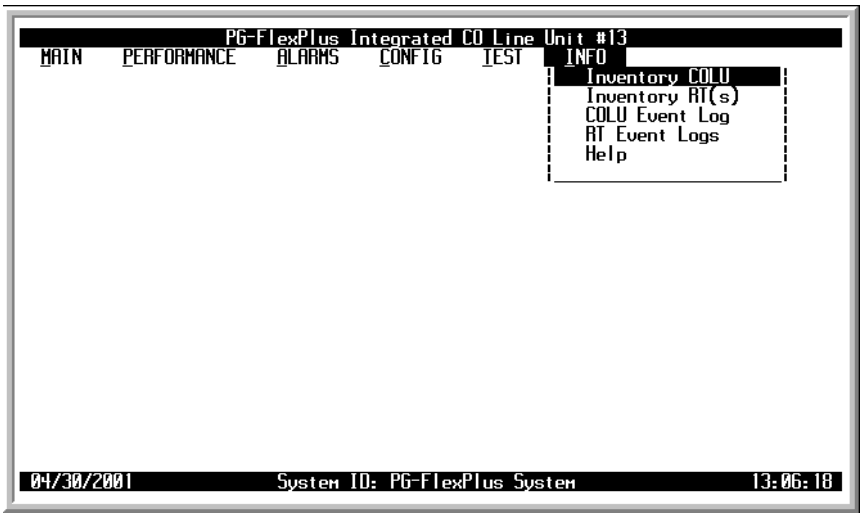

Figure 46. *Information Submenu Screen*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

Inventory COLU Screen

The Inventory COLU displays all the critical information about the COLU.

1 Select the *Inventory COLU* option and press **ENTER** to display the screen:

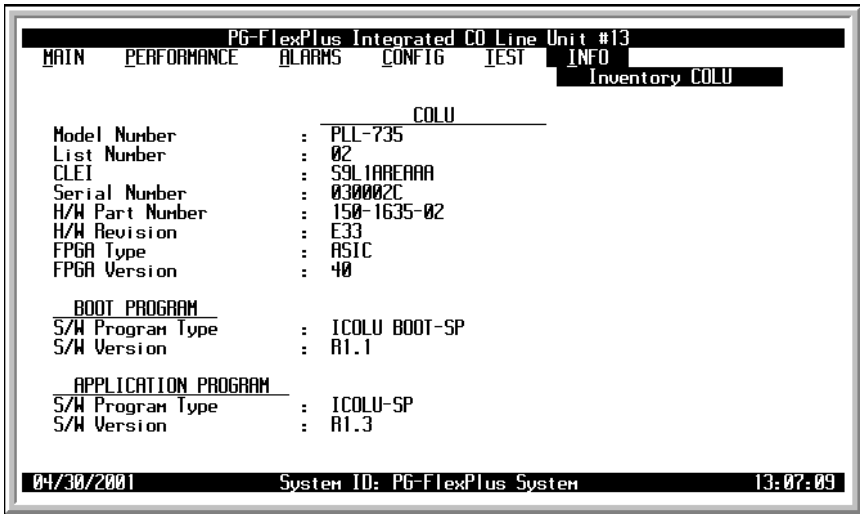

Figure 47. *Inventory COLU Screen*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

RTs Inventory Screen

This screen displays all pertinent information about the connected RTs.

1 Select the *Inventory RT(s)* option and press **ENTER** to display the screen:

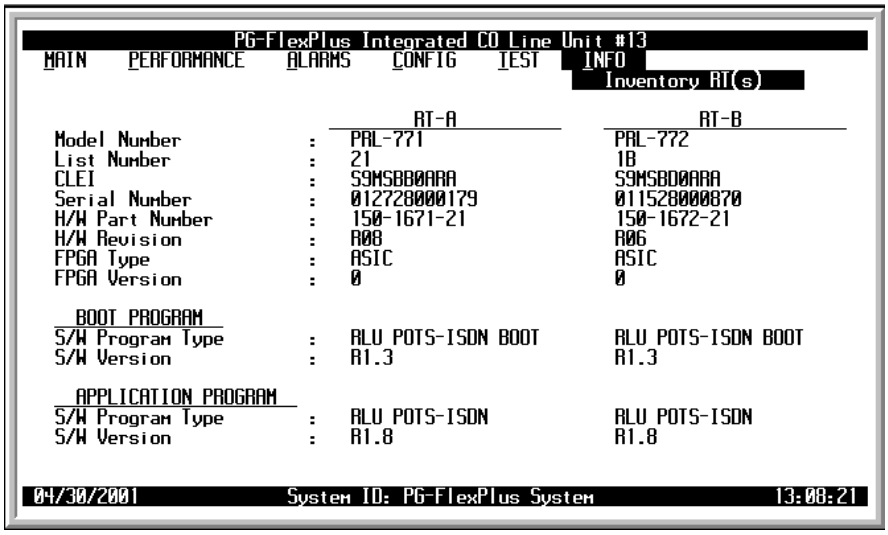

Figure 48. *Inventory RT(s) Screen*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

COLU Event Log Screen

This screen provides information on events that occurred but are not Alarmed. The two Events logged are as follows:

- MEMVER: A provisioning database conversion occurred when a software download occurred. MEMVER is informational only. This event is cleared if you reset the COLU, however it is not required. No customer action is required.
- MEMCHK: The provisioning factory defaults were restored due to a corrupted database. MEMCHK is informational only. To clear the MEMCHK alarm, go to the CONFIG submenu option *Set Factory Defaults* and Accept the Set Factory Defaults prompt. No customer action is required.

1 Select the *COLU Event Log* option and press **ENTER** to display the screen:

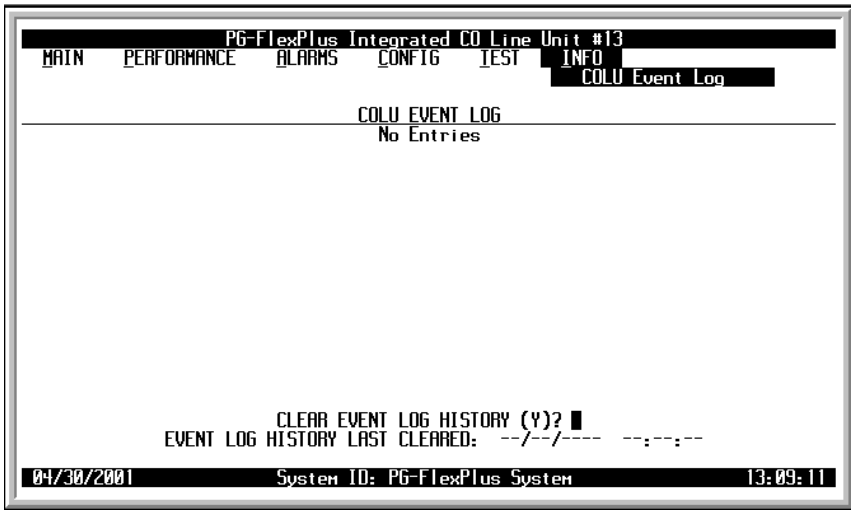

Figure 49. *COLU Event Log Screen*

2 Type **Y** in the field after the `Clear Event Log History (Y)?` prompt to clear the event log history. The date and time the Event Log was last cleared is displayed below the prompt.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

RT Event Logs Screen

This screen provides information on events that occurred but are not Alarmed events. The two Events that can be logged are:

- MEMVER: A provisioning database conversion occurred when a software download occurred. MEMVER is informational only. This Event is cleared if you reseat the COLU, however, it is not required. No customer action is required.
- MEMCHK: The provisioning factory defaults were restored due to a corrupted database. MEMCHK is informational only. To clear the MEMCHK alarm, go to the CONFIG submenu option *Set Factory Defaults* and Accept the Set Factory Defaults prompt. No customer action is required.

1 Select the *RT Event Log* option and press **ENTER** to display the screen:

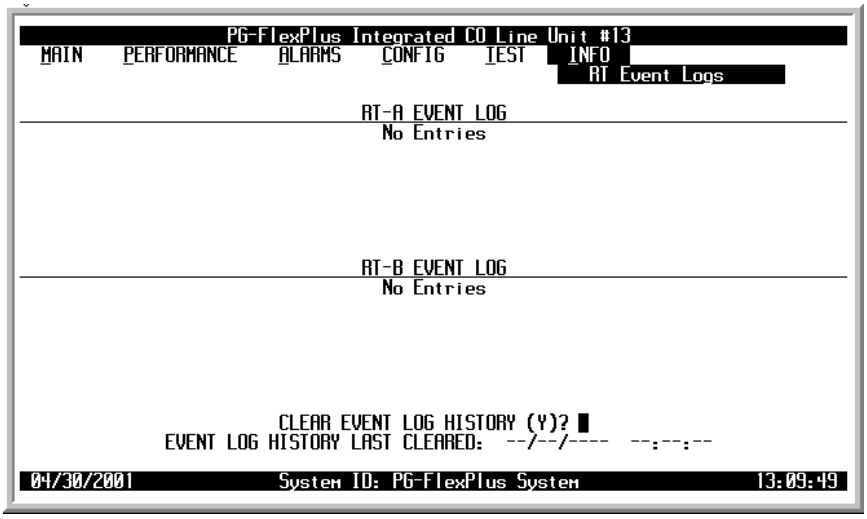

Figure 50. *RT Event Logs Screen*

2 Type **Y** in the field after the `Clear Event Log History (Y)?` prompt to clear the event log history. The date and time the Event Log was last cleared is displayed below the prompt.

3 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

Help Screen

Provides information on using the screens and menus.

1 Select the *Help* option and press **ENTER** to display the screen:

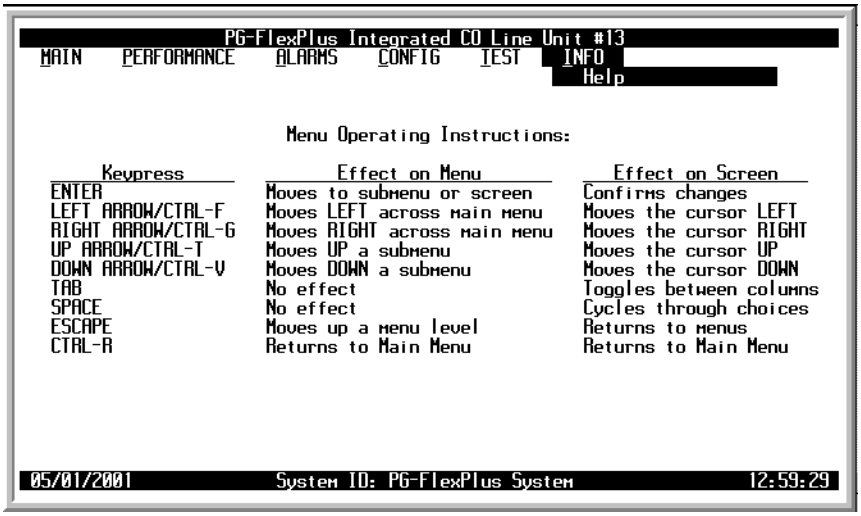

Figure 51. *Help Screen*

2 Press **ESC** to return to the DICOLU main screen, or **CTRL** + **R** to return to the PAU/PMU main menu.

FAULT ISOLATION

The following sections detail the fault isolation procedures. For sections that indicate a condition such as "distance limitation exceeded," refer to the section "Specifications" on page 2 for the correct values.

DICOLU AND RT FAULT INDICATORS

At the CO, you can use the Craft interface to initiate a SDT to determine the cause of any of the following problems. The SDT test performs Hazardous Potential, Foreign Voltage, Resistive Faults, Receiver Off-hook, and Ringers Tests. At the customer site, the following sections provide procedures for isolating faults indicated by the COLU LEDs.

LED	Color	State	Probable Cause	Solution
PWR	Green	On, all other LEDs flashing	Application program in PLL-735 has become corrupt.	Download new software into the PLL-735.
		On, all other LEDs running downward	OK	Wait for software to be downloaded and PLL-735 has re-started.
		On, all other LEDs running upward	OK	Wait for software to be downloaded and PLL-735 has re-started.
		On FAULT flashing	The PLL-735 detects the RT but the HDSL loop is drawing too much power or has a ground fault.	Check the HDSL loop for shorts or grounds.
		On	OK	
		Flashing	The PLL-735 detects the RT but the HDSL loop cannot synchronize.	Check the HDSL loop for faults such as shorts, grounds or bridged taps. Verify loop length limitations are not exceeded.
		Off	No battery feed to COT shelf.	Verify fuses in equipment bay fuse panel. Verify CO battery is present on COT shelf backplane.
SYNC	Green	On	OK	
		Flashing	The PLL-735 detects the RT but the HDSL loop cannot synchronize.	Check the HDSL loop for faults such as shorts, grounds or bridged taps. Verify loop length and loop loss limitations are not exceeded.
		Off	The PLL-735 does not detect an RT.	Verify an RT is connected to the HDSL loop. Check the HDSL loop for faults such as opens, grounds, load coils or bridged taps. Verify loop length and loop loss limitations are not exceeded.
MARGIN	Yellow	On	The HDSL signal level is too low coming into the PLL-735.	Check the HDSL loop for faults such as shorts, grounds or bridged taps. Verify loop length and loop loss limitations are not exceeded.
		Flashing	The HDSL signal level is too low coming into the RT.	Check the HDSL loop for faults such as shorts, grounds or bridged taps. Verify loop length and loop loss limitations are not exceeded.
		Off	OK	
TEST	Yellow	On		Wait for subscriber drop test to complete.

LED	Color	State	Probable Cause	Solution
		Off	OK	
FAULT	Red	On	There is a problem with the PLL-735.	Replace the PLL-735.
		Flashing	The PLL-735 or RT has generated an alarm.	Connect VT-100 terminal to PAU or PMU. The PLL-735 main screen will indicate the cause of the alarm. Correct the condition causing the alarm.
		Off	OK	

SUBSCRIBER REPORTED FAULTS

At the CO, you can use the Craft interface to initiate a SDT to determine the cause of any of the following problems. The SDT test performs Hazardous Potential, Foreign Voltage, Resistive Faults, Receiver Off-hook, and Ringers Tests. At the customer site, the following sections provide procedures for isolating faults, based on subscriber reports.

Indicator	Probable Cause	Solution
No dialtone, cannot dial	Short-circuit or open-circuit	**1** At the CO using the Craft screen, select TEST menu option, and view the test results. The tests run are for Hazardous Potential, Foreign Voltage, Resistive Fault, and CPE Termination. **2** At the RT, lift the subscriber pair at the RT by opening the RJ-11 connector on the Integrated Protector Module. If dialtone is present at the RT and calls can be placed, the fault is in the subscriber side. Check for shorts or opens towards the subscriber or on the customer premise. **3** If dialtone is not present with the RJ-11 test connector lifted, lift the jumper in the CO between the CO switch and the COTS. If dialtone is present at the switch, replace the COLU. **4** If after replacing the COLU the dialtone is still not present, the fault is in the RT. Replace the RT.
Phone does not ring	High-resistance short on subscriber drop (REN load exceeded, see Specifications).	**1** At the CO, using the Craft interface, go to the COLU Main Screen to verify the correct operation of the COLU. Check the front panel LEDS for flashing while line is ringing. If you cannot view the COLU Main Screen, a communication error exists indicating a faulty COLU. Remove and re-insert the COLU. **2** Go to the Test option, and select the desired circuit to test. **3** View the SDT results. Refer to the Test Submenu section for specific results. **4** At the RTs, check for ringing with the RJ-11 test jack open. If ringing is not present, check for ringing on another line terminated on the same RT. If ringing is present on other lines, check for high-resistance shorts on the subscriber drop. If no high resistance shorts, replace the RTs. **5** If ringing is not present on another circuit terminated on the RT, lift the jumper between the CO switch and the COTS. If ringing is present, replace the COLU. If ringing is not present, the fault is in the switch.
Phone does not stop ringing	Faulty subscriber station instrument or loop length too long.	**1** If phone stops ringing when using a butt-in set at the subscriber location, the subscriber's station internal resistance is too high. Replace phone. **2** If phone does not stop ringing when using a butt-in set at the subscriber location, one or both of these conditions exist: • loop length is too long (refer to Specification table) • or the RT is faulty.
Can not hear, cannot be heard	Subscriber problem	**1** Open the RJ-11 test jack at the RT. If audible level is acceptable, the problem is with subscriber equipment. **2** If audible level is too low at the RT with the RJ-11 test jack lifted, lift the jumper in the CO between the CO switch and the COTS. • If audible level is acceptable, replace the COLU or RT • otherwise, the problem is in the CO switch.

PRODUCT SUPPORT

TECHNICAL SUPPORT

Technical Assistance is available 24 hours a day, 7 days a week by the contacting Customer Service Engineering group at:

Telephone:	800.366.3891 The 800 telephone support line is toll-free in the U.S. and Canada.
Email:	wsd_support@adc.com
Knowledge Base:	http://adc.com/Knowledge_Base/index.jsp
Web:	www.adc.com

LIMITED WARRANTY

Product warranty is determined by your service agreement. Refer to the ADC Warranty/Software Handbook for additional information, or contact your sales representative or Customer Service for details.

RETURNS

To return equipment to ADC:

1. Locate the number of the purchase order under which the equipment was purchased. To obtain a return authorization number, you need to provide the original purchase order number to ADC's Return Material Authorization (RMA) Department.
2. Call or write ADC's RMA Department to ask for an RMA number and any additional instructions. Use the telephone number, fax number or email address listed below:
   - Telephone: 800.366.3891
   - Email Address: rma@ADC.com
3. Include the following information, in writing, along with the equipment you are returning:
   - Company name and address.
   - Contact name and telephone number.
   - The shipping address to which ADC should return the repaired equipment.
   - The original purchase order number.
   - A description of the equipment that includes the model and part number of each unit being returned, as well as the number of units that you are returning.
   - The reason for the return. For example:
     - The equipment needs an ECO/ECN upgrade.
     - The equipment is defective.

If the equipment is defective, please tell us what you observed just before the equipment malfunctioned. Be as detailed in your description as possible.

If there is another reason for returning the equipment, please let us know so we can determine how best to help you.

4 Pack the equipment in a shipping carton.

5 Write ADC's address and the RMA Number you received from the RMA Department clearly on the outside of the carton and return to:

ADC DSL Systems, Inc.
14352 Franklin Ave.
Tustin, CA 92780-7013

Attention: **RMA (Number)**

All shipments are to be returned prepaid. ADC will not accept any collect shipments.

FCC CLASS A COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the use will be required to correct the interference at his own expense.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by ADC voids the user's warranty.

All wiring external to the product(s) should follow the provisions of the current edition of the National Electrical Code.

ACRONYMS

ACO	Alarm Cut-Off
AWG	American Wire Gauge
BER	Bit Error Ratio
CEV	Controlled Environmental Vault
CO	Central Office
COLU	Central Office Line Unit
COTS	Central Office Terminal Shelf
CPE	Customer Premises Equipment
CR	Critical
DAML	Digital Added Main Line
DICOLU	Dual Integrated Central Office Line Unit
ES	Errored Seconds
HDSL	High-bit-rate Digital Subscriber Line
LCFO	Line Current Feed Open
LED	Light Emitting Diode
LOSW	HDSL Loss of Synchronization Word
MAR	HDSL Line Margin
MISPWR*n*	Power *n* Missing
MJ	Major
MLT	Mechanized Loop Testing
MN	Minor
MISMATCH*n*	COLU-RT Mismatch
NA	Not Alarmed
NORLUSW*n*	NO RT-*n* Software
NR	Not Reported
PAU	PG-Plus Alarm Unit
PFO	Power Feed Open
PFS	Power Feed Short
PGF	Power Feed Ground Fault
PMU	PG-Flex^{Plus} Management Unit
PMX	PG-Flex^{Plus} Multiplexer Unit
POTS	Plain Old Telephone Service

RMA	Return Materials Authorization
RT	Remote Terminal enclosure for the RLU
SDT	Subscriber Drop Test
SYNC	Synchronization
UAS	Unavailable Seconds

World Headquarters:
ADC Telecommunications, Inc.
12501 Whitewater Drive
Minnetonka, Minnesota USA 55343

For Technical Assistance:
800.366.3891

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