PG-Flex*Plus*

Field Shelf

Technical Practice

Model	List	CLEI Code
PCS-822	2A	S9MSGMGB~~

Section SCP-PCS822-021-03H

REVISION HISTORY

Revision	Release Date	Revisions Made
01	August 12, 2002	Initial Release
02	September 19, 2002	Added cabling wire gauges and lengths, updated protection block illustrations, etc.
03	January 6, 2003	Updated Product Support Information

USING THIS TECHNICAL PRACTICE

The following style conventions and terminology are used throughout this guide.

Reader Alert	Meaning
	Alerts you to supplementary information
	Alerts you to supplementary information that is essential to the completion of a task
	Alerts you to possible equipment damage from electrostatic discharge
	Alerts you to possible data loss, service-affecting procedures, or other similar type problems
	Alerts you that failure to take or avoid a specific action might result in hardware damage or loss of service
	Alerts you that failure to take or avoid a specific action might result in personal harm

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 Product Support on page 33. 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*™ PCS-822 List 2A Field Shelf (Figure 1) supports POTS, ADSL and ISDN services. ADSL is provided through Edge Internet Access Devices (IADs) and Remote Access Modules (RAMs). Any combination of up to eight PG-Flex*Plus* PLL-735 Dual Integrated Central Office Line Units (DICOLUs), eight PG-Flex*Plus* ALU-935 Asynchronous Transfer Mode Central Office Line Units (ACOLUs), or four FLL-814 Flex Integrated Central Office Line Units (FICOLUs) can be installed in the Field Shelf (Table 1).

The PCS-822 contains eight 200 mechanics DS1 slots that provide up to 96 DS0s of Time Division Multiplex (TDM) services and up to 128 PVCs for ATM services. These slots support external interfaces of T1, High-bit-rate Digital Subscriber Loop (HDSL), or HDSL2. PCT-850 cards can also be placed in the T1 slots for feeding an external DSX-1 directly into the Multiplexer Unit (MUX).

Only 200 mechanics cards that use pin 27 for frame to ground connections should be used with the PCS-822.

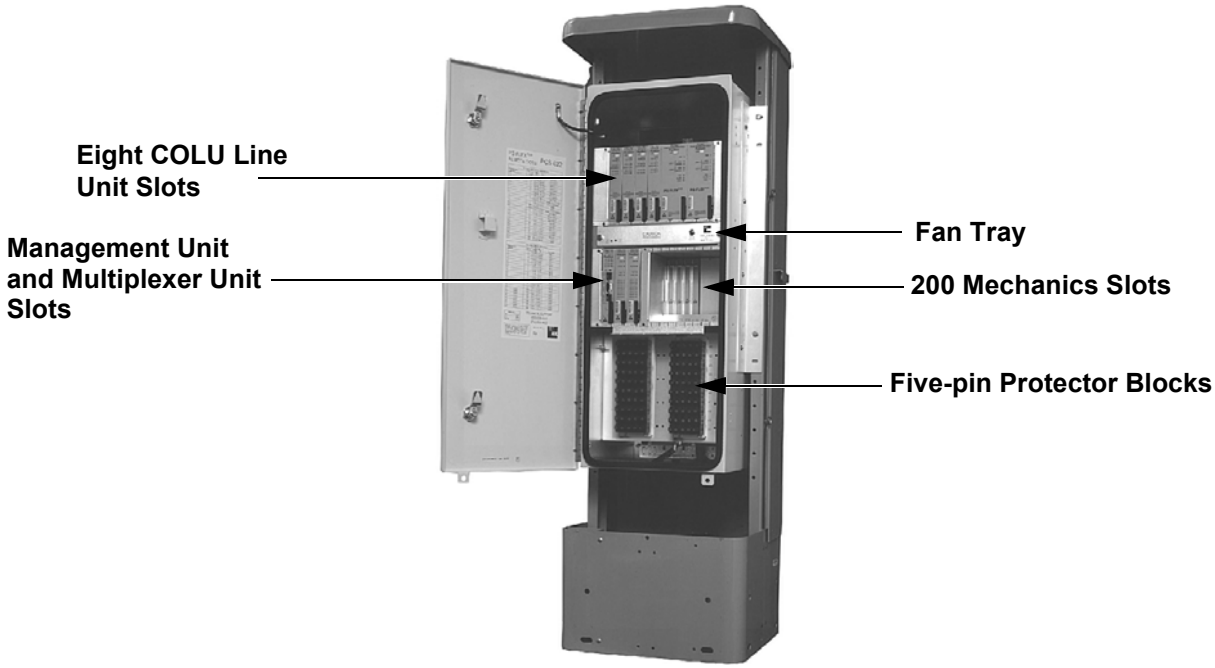

Figure 1. Field Shelf Mounted in the Marconi NCAD16C Pedestal

Table 1. PCS-822 Card Types/System Types

Entity	4/6 Channel Systems	24 Channel Systems	IAD and RAM Systems
Management Unit (MU)	PMU-712	PMU-712	AMU-912 or PMU-712
Multiplex Unit (MUX)	PMX-744	PMX-744	AMX-943
Line Unit (LU)	PLL-735	FLL-814	ALU-935

FEATURES

The PCS-822 has the following features. Refer to Figure 2 for a PCS-822 block diagram.

- Eight COLU slots, each supporting two DSL pairs or six POTS pairs
- One Management Unit slot
- Two MUX slots supporting primary and secondary service for equipment protection
- Redundant DC power connections
- Fan card (PFU-830) for cooling
- Door alarm and Fan alarm
- One general purpose alarm input
- Seven alarm outputs in the form of normally open relay contacts
- Test pair output for returning TR-909 type signature resistances to automated testing systems such as Mechanized Loop Testing (MLT)
- (Five) thirty-five foot cable stubs for wiring and one sixteen-foot ground wire
- NIU Slots

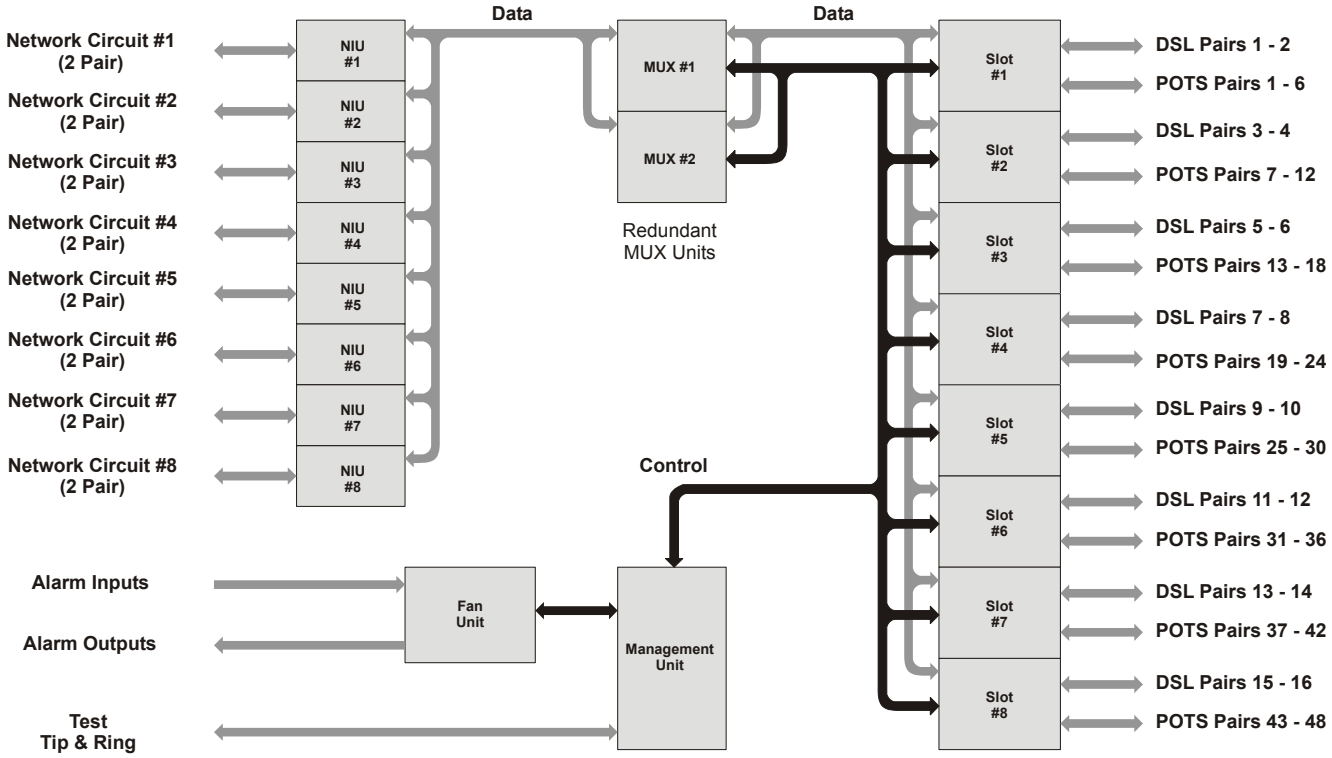

Figure 2. PCS-822 Block Diagram

CAUTION ***If you use a PCT-850 card with any input signal other than a DSX-1, the MUX card may be damaged. This type of damage is not covered by the ADC warranty.***

The NIU and MUX must be configured for the same frame format and line code for correct operation.

PCS-822 Field Shelf Application Configurations

The PCS-822 List 2A Field Shelf can be configured for a variety of applications and the application affects the Field Shelf wiring requirements.

Figure 3 depicts a typical 4/6 channel configuration using PLL-735 and PG-Plus Network Interface Devices (NIDs). The NIDs support up to 6 each UVG POTS services and are powered from the PLL-735s installed in the Field Shelf. The four DS1 circuits provide 96 DS0s of service with the optional fifth DS1 providing a protection circuit.

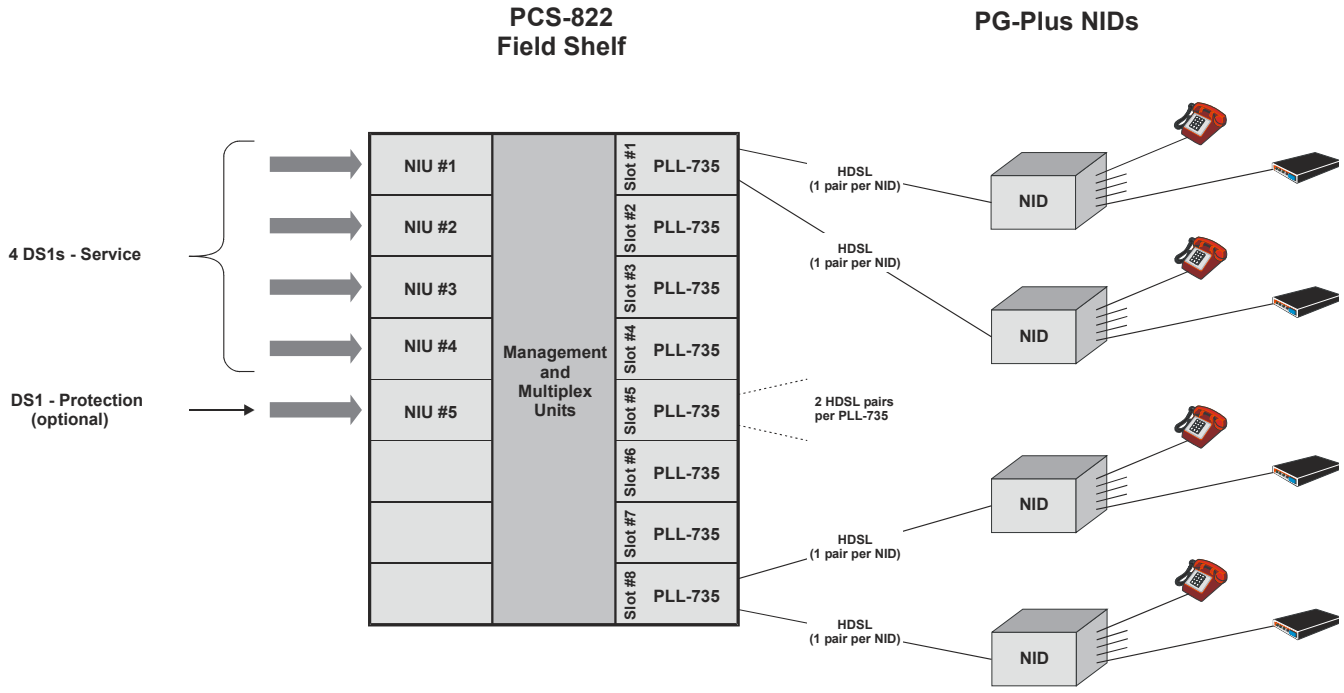

Figure 3. PCS-822 Application – 4/6 Channel Systems

A typical 24 channel configuration is shown in Figure 4. This application uses FLL-814 and PG-Flex Remote Terminal (RT) Enclosures to support voice services. Two additional power pairs are required between the Field Shelf and the RT Enclosures for each Doubler used to extend the distance between the Field Shelf and RT Enclosure. Optionally, the RT Enclosure may be locally powered to eliminate the need for the power pairs. The four DS1 circuits provide 96 DS0s of service with the optional fifth DS1 providing a protection circuit.

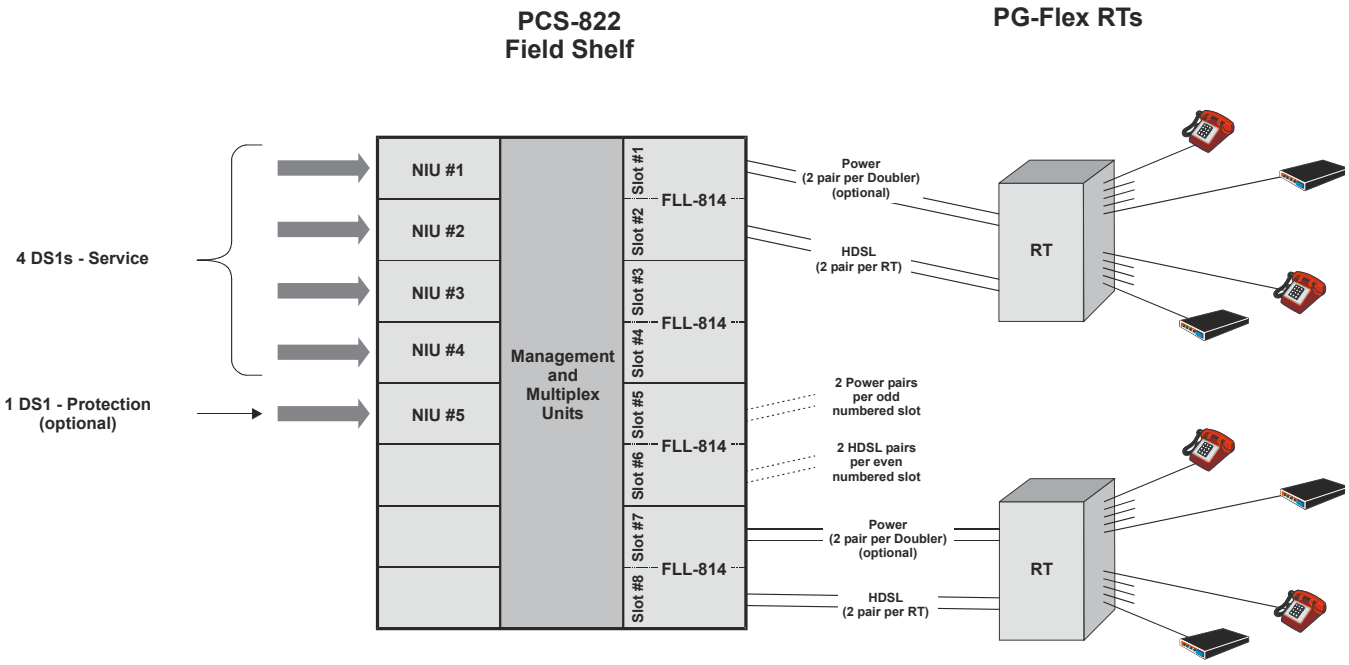

Figure 4. PCS-822 Application – 24 Channel Systems

The Field Shelf can be configured to support a combination of 4/6 channel and 24 channel systems as shown in Figure 5. PLL-735s and FLL-814s may be installed in any available slots and in any order in the Field Shelf. FLL-814s must be placed in the shelf in an odd/even slot relationship – slots 1-2, 3-4, 5-6, 7-8. The same criteria for power pairs and DS1 circuits apply for this configuration as with the FLL-814 configurations previously described.

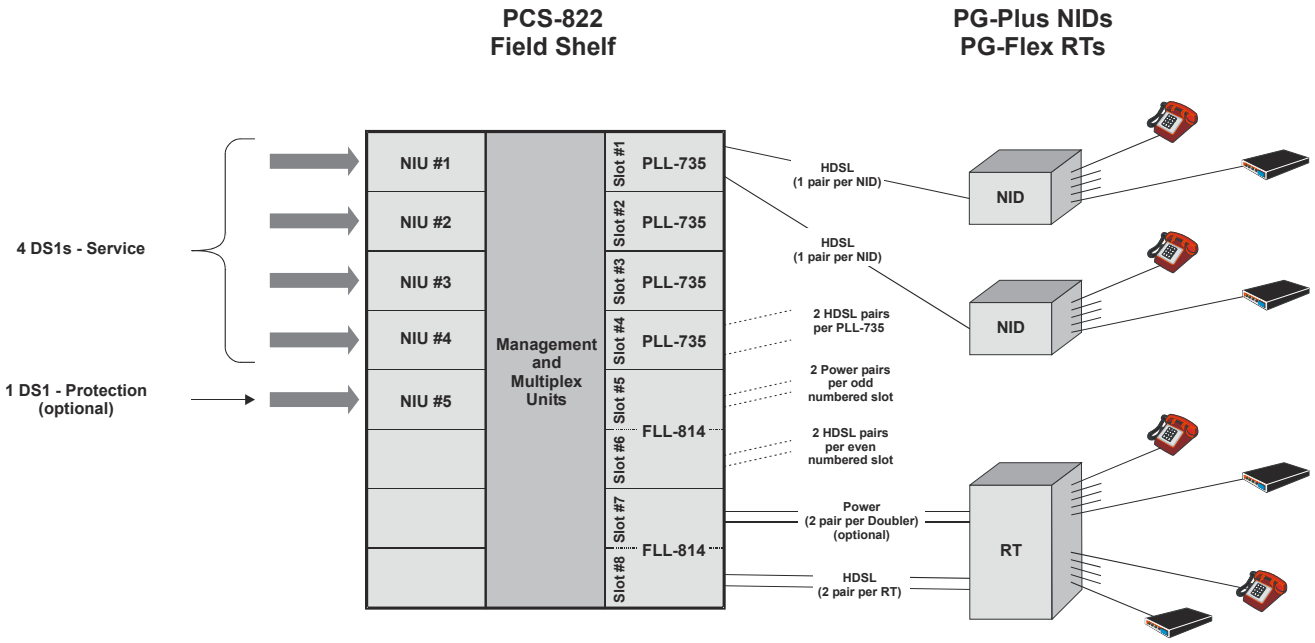

Figure 5. PCS-822 Application – 4/6/24 Channel Systems

Figure 6 shows the configuration for PG-Flex*Plus* FPR-806 Remote POTS (RPOTS) applications. This is a basic universal channel bank architecture. Two DS1s are required for service and an optional third pair may be used for circuit protection. This configuration cannot be combined with other configurations described in this section.

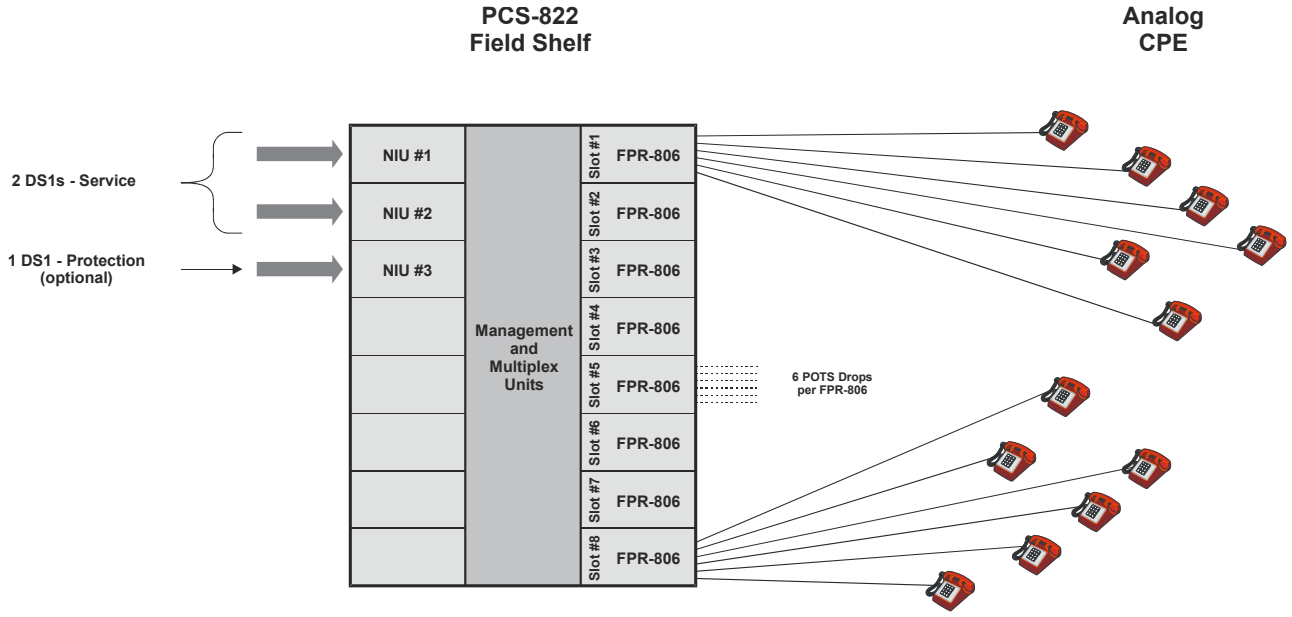

Figure 6. PCS-822 Application – RPOTS

The Edge Internet Access Device (IAD) configuration is shown in Figure 7. ALU-935s are installed in the Field Shelf; ARB-963 and ARB-964 IADs are used at the customer premises and are line powered from the ALU-935s. Depending on the type of IAD, a splitter may be required at the customer premises to separate the ADSL and POTS signals. Four DS1's provide up to 96 DS0's of TDM voice and 4 DS1's provide up to 16 PVC's of ATM data.

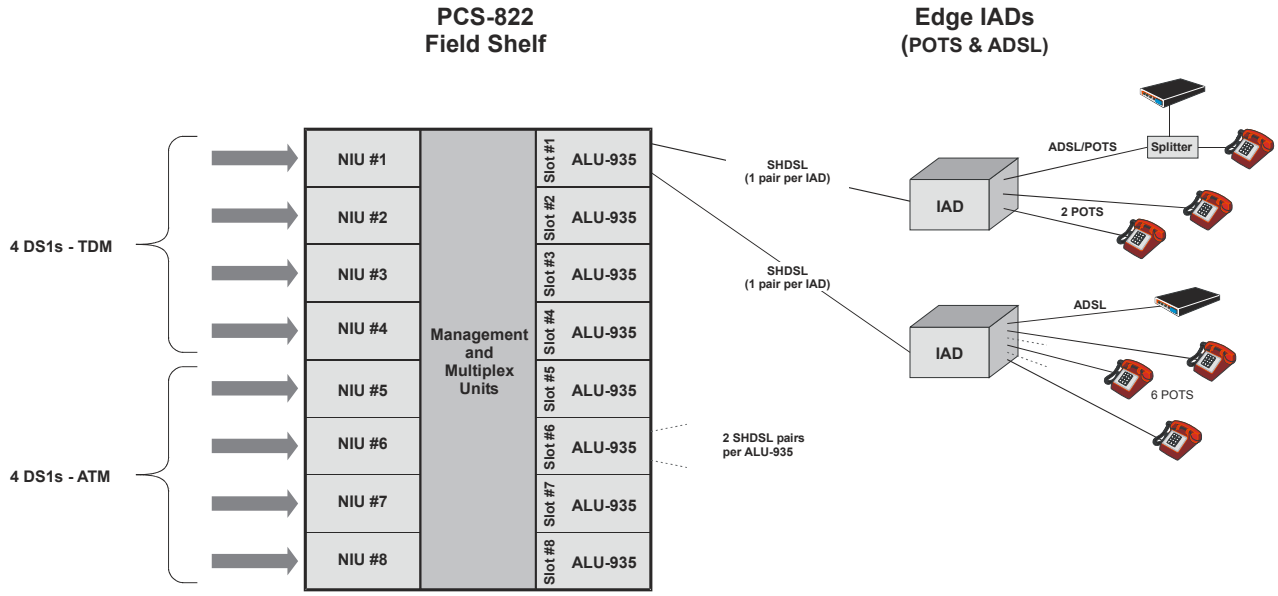

Figure 7. PCS-822 Application – Edge IAD

Figure 8 depicts a typical RAM configuration. The RAM consists of an ARX-965 Crossbox Enclosure and up to three ARL-942 Asynchronous Remote Line Units (ARLUs) and ASU-940 splitter/combiners. The RAM is powered from the ALU-935s installed in the Field Shelf. The ASU-940 combines the ADSL signals from the ARL-942 with the analog POTS circuits from the crossbox or other source of dial tone. Four DS1 circuits provide up to 24 PVC's of ATM data for each RAM.

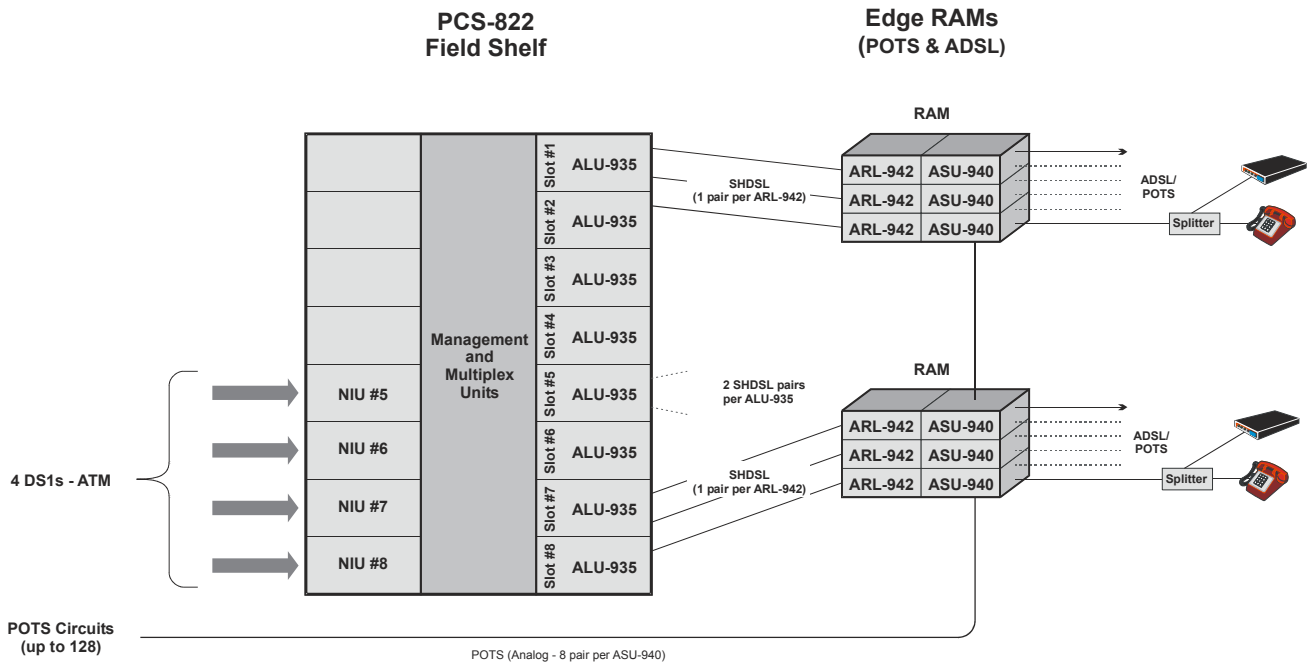

Figure 8. PCS-822 Application – Edge RAM

Combined Edge IAD and RAM services are shown in Figure 9. The Edge IADs get their voice circuits from the TDM DS1s; the Edge RAMs get their voice circuits from the crossbox or other source of dial tone. The four ATM DS1's provide data circuits for both the Edge IADs and RAMs.

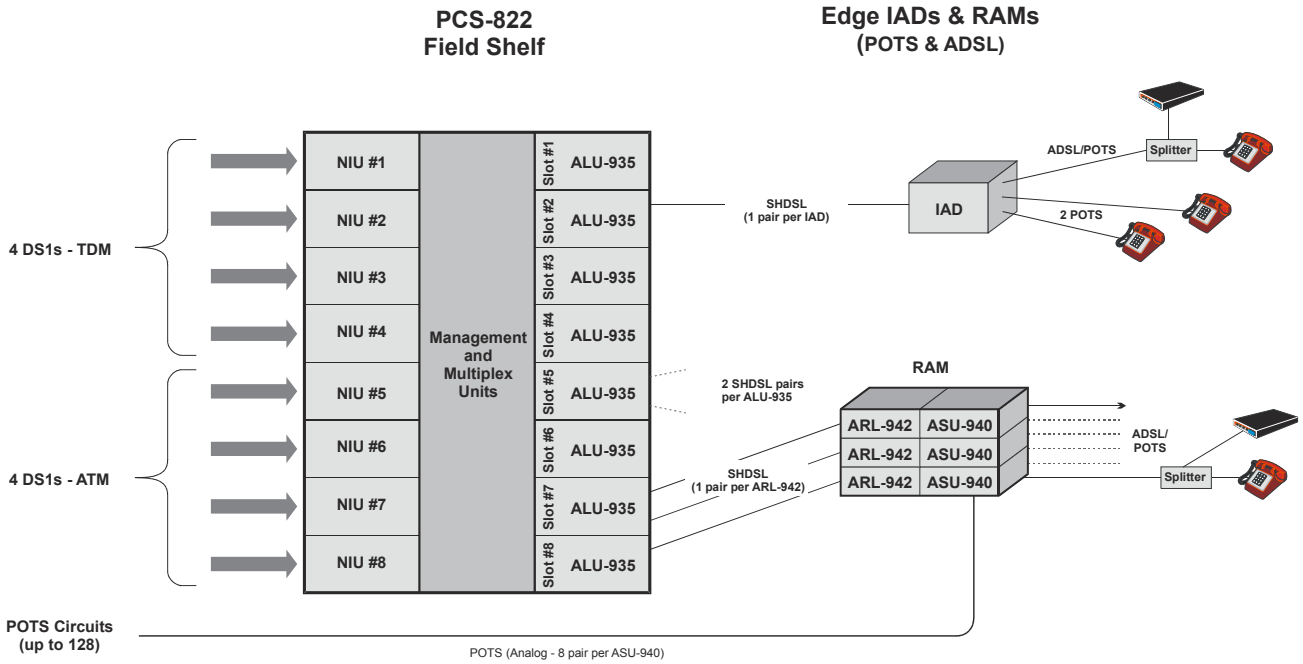

Figure 9. PCS-822 Application – Edge IAD and Edge RAM

Figure 10 depicts an architecture that combines 4, 6, and 24 channel systems with Edge IADs and Edge RAMs to provide POTS, ADSL, and ISDN services from the Field Shelf. As with the other configurations described in this section, all NIDs, RT Enclosures, IADs, and RAMs are powered from the Field Shelf.

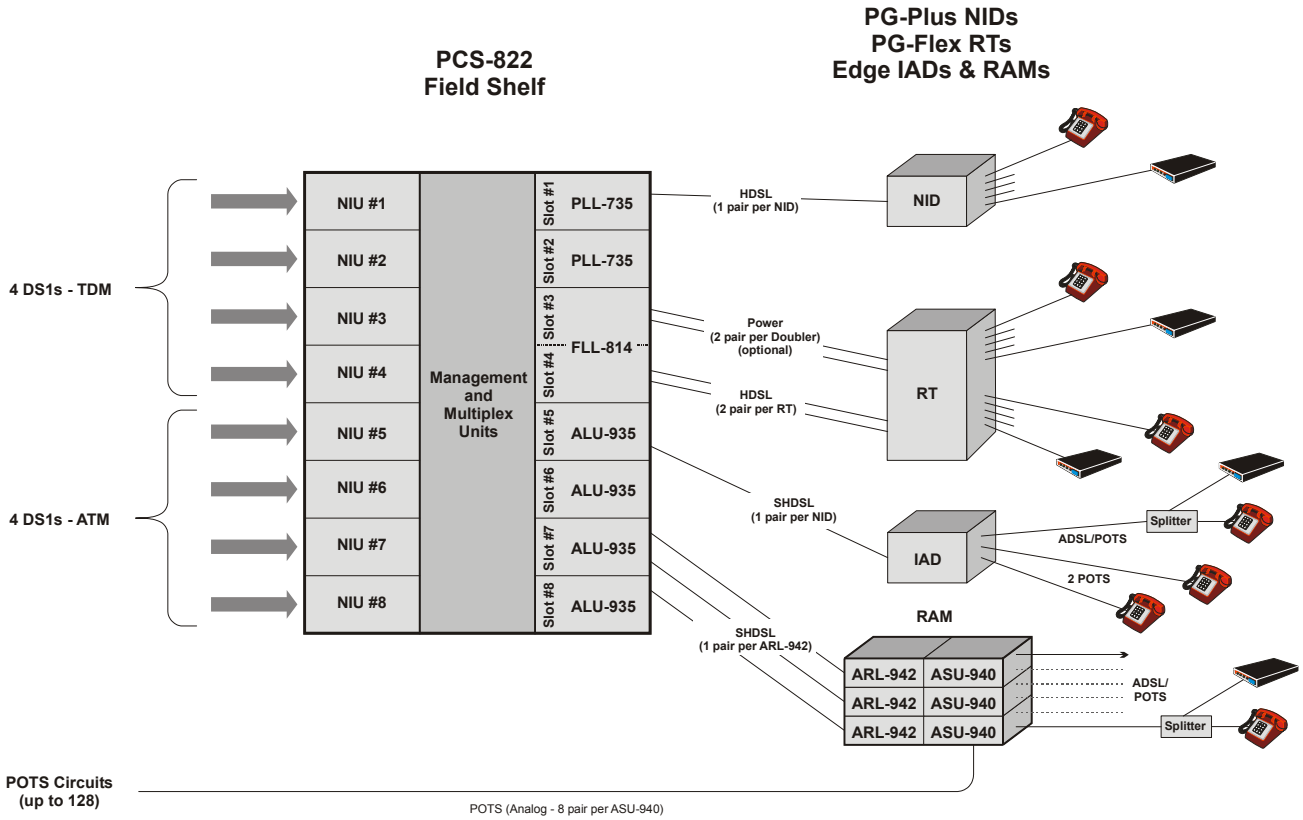

Figure 10. PCS-822 Application – 4/6/24 Channel Systems, Edge IAD and RAM Systems

ALARMS

The Management Unit supports the input and output alarms that are provided by the PCS-822. It also supports alarm relay contacts for reporting various alarm events (Figure 11). Refer to the appropriate Management Unit documentation for information on provisioning these alarms.

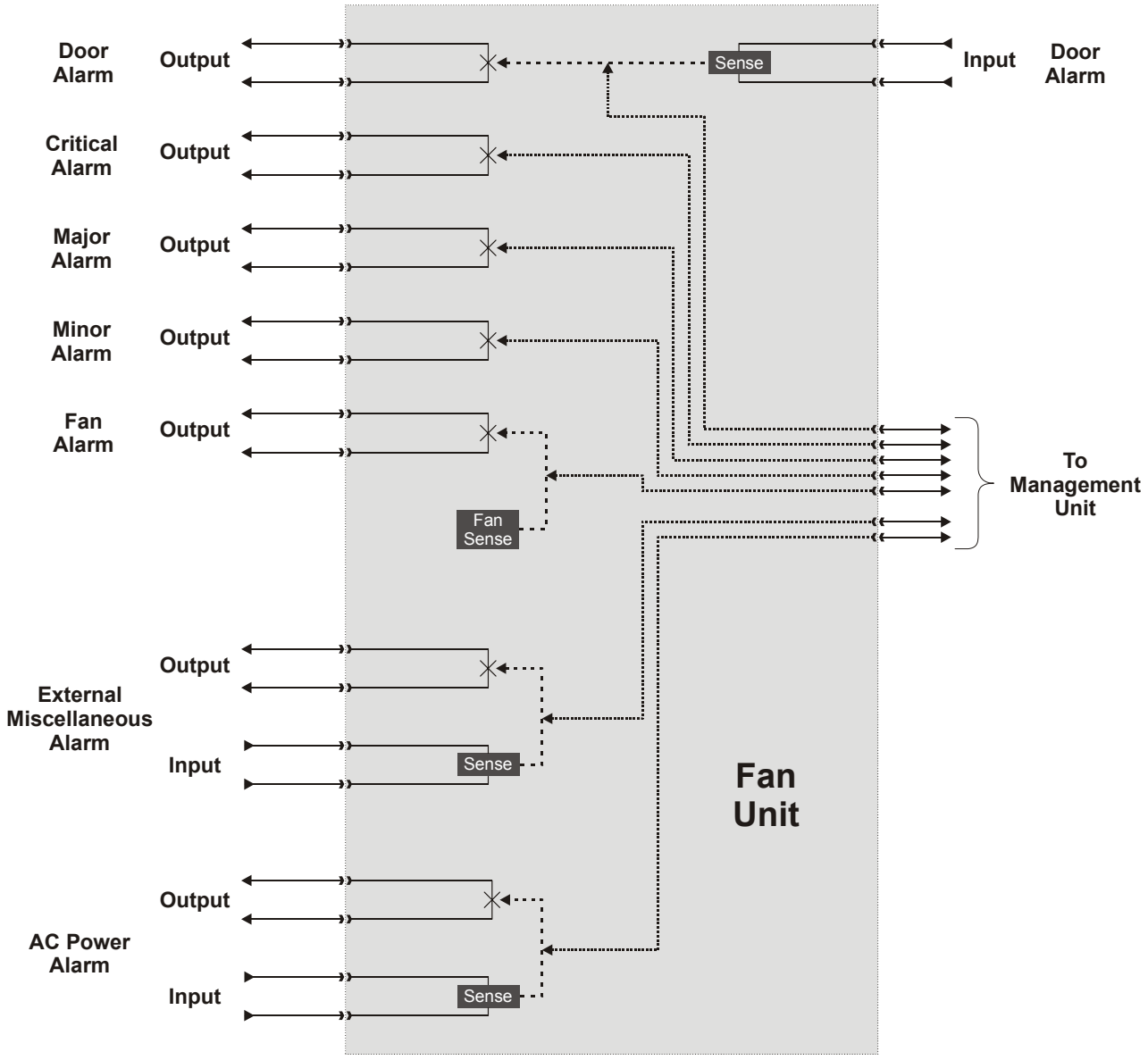

Figure 11. Alarm Circuits

The Field Shelf Fan Unit and Management Unit must be installed in the Field Shelf to support alarm reporting.

SPECIFICATIONS

Table 2 lists the specifications on the PCS-822.

Table 2. Specifications

Specification Type	Item	Value
Power	Input Voltage Range	–42 Vdc to –56 Vdc
Environmental	Operating Elevation	–200 ft. to 13,000 ft. –60 m to 4,000 m
	Operating Temperature	–40° F to +150° F –40° C to +65° C
	Operating Humidity	5% to 95% (noncondensing)
Compliance	NEBS	SR-3580 Level 3
	GR-63-CORE	Equipment is compliant with the applicable environmental sections when installed in a pedestal
	GR-487-CORE	Equipment is compliant with the applicable environmental sections when installed in a pedestal
	GR-1089-CORE	Field Shelf and installed equipment comply with the applicable sections for: • EMI/EMC for Class B equipment • Electro-Static Discharge • Lightning Surge • Power Cross
	Human Safety	UL 1950 for Restricted Access
	FCC	FCC part 15 class B
Physical	Height	33.0 in. (83.8 cm.)
	Width	12.5 in. (32.0 cm.)
	Depth	15.0 in. (38.1 cm.)
	Weight	60.0 lbs. (27.2 kg.)

INSTALLATION AND TEST

REQUIRED TOOLS AND TEST EQUIPMENT

The tools and test equipment required for the installation of the Field Shelf are:

- Volt-ohmmeter
- 216 tool (Can Wrench)
- # 2 Phillips-head screw driver

HARDWARE INCLUDED WITH THE KIT

- Two Mounting Brackets
- Four 10-32 x ¾" Pan Head Phillips Screws
- Four #10 Flat Washers
- Four 3/8” Spacers
- Four 10-32 x 3/8" Pan Head Phillips Screws

or

- Two Mounting Brackets
- Four 1/4-20x ¾" Captive Hex Head Screws
- Four 1/4" Cup Washers
- Four 1/2" Spacers
- Four 1/4-20 x 1/2" Hex Washer Head Screws

Refer to Table 3 for Field Shelf cable wire gauges and lengths.

Table 3. Cable Wire Gauge and Length

Cable	Wire Gauge (AWG)	Length (FT)
Network (T1/HDSL) Cable	24	30 ± 1 FT
DSL Cable	24	30 ± 1 FT
Subscriber Cable	24	30 ± 1 FT
Alarm Cable	24	30 ± 1 FT
Power Cable	16	30 ± 1 FT
Frame Ground Cable	6	15 ± 1 FT

INSTALLING THE BRACKETS

1. Remove the divider panel from the CAD-16 and save the mounting hardware. The divider panel is not required; however, the ground clamp attached to the divider panel is required for grounding the Field Shelf and pedestal (PCS-822 Ground Connections on page 17).
2. Install the mounting brackets using the hardware from step 1 (Figure 12). Do not tighten the hardware until the Field Shelf has been attached.

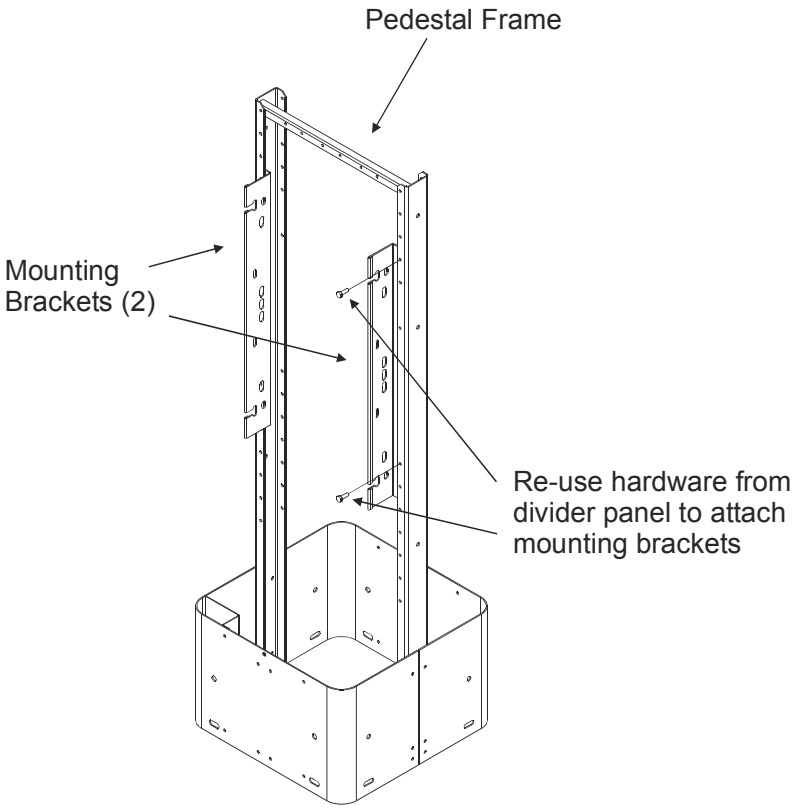

Figure 12. Mounting the Brackets

PREPARING THE FIELD SHELF

If spacer assemblies are already attached, skip this procedure and go to Attaching the Field Shelf on page 16.

1. Build a spacer assembly by placing one #10 flat washer onto a 10-32 x ¾" Pan Head Phillips screw, followed by one 3/8" spacer or by placing one 1/4" cup washer onto a 1/4-20x ¾" Captive Hex Head Screw, followed by one 1/2" spacer.
2. Repeat step 1 three times to build a total of four spacer assemblies.
3. On each side of the Field Shelf, install two spacer assemblies (Figure 13). Ensure that the spacer assemblies are tightly secured to the Field Shelf.

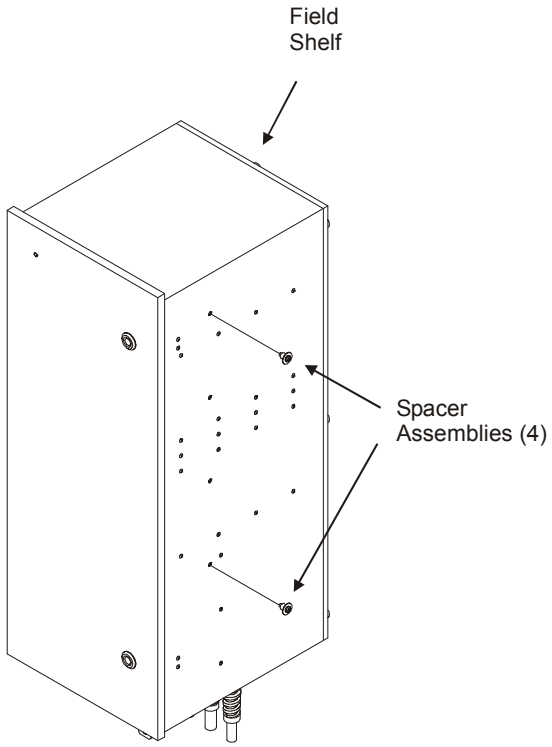

Figure 13. Preparing the Field Shelf

ATTACHING THE FIELD SHELF

1. Route the cables through the bottom of the pedestal.
2. Lift the Field Shelf onto the mounting brackets. Slide the spacer assemblies into the slots on the mounting brackets to the pedestal (Figure 14).

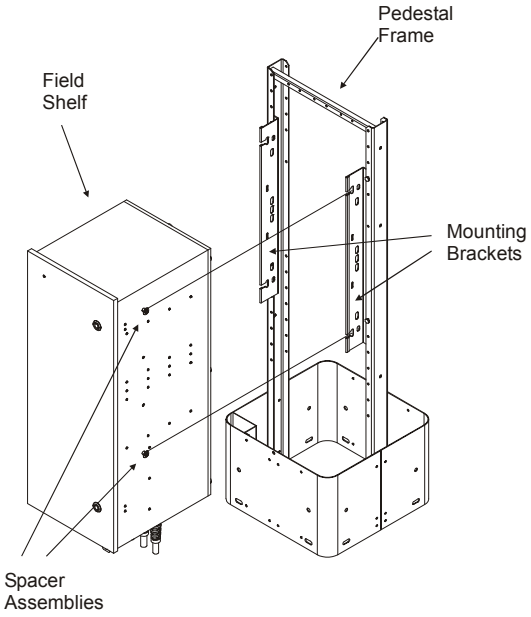

Figure 14. Mounting the Field Shelf

3. Use the 10-32 x 3/8" Pan Head Phillips screws or 1/4-20 x 1/2" Hex Washer Head screws to secure the Field Shelf to the mounting brackets (Figure 15).

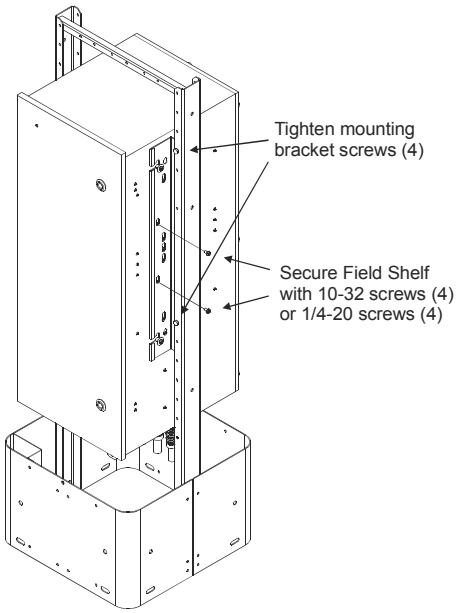

Figure 15. Securing the Field Shelf

Place four anchor stakes (one at each corner) at the placement site using standard installation methods to secure the Field Shelf pedestal in the ground.

PCS-822 GROUND CONNECTIONS

DANGER ***A connection to ground MUST be provided to provide a discharge path for outside plant protection circuits.***

The NCAD-16-C pedestal includes hardware for mounting a ground bar to the pedestal. The following steps should be followed to attach the ground bar and terminate the ground wires.

1. Locate the ground clamp assembly on the divider panel previously removed from the pedestal (Figure 16).

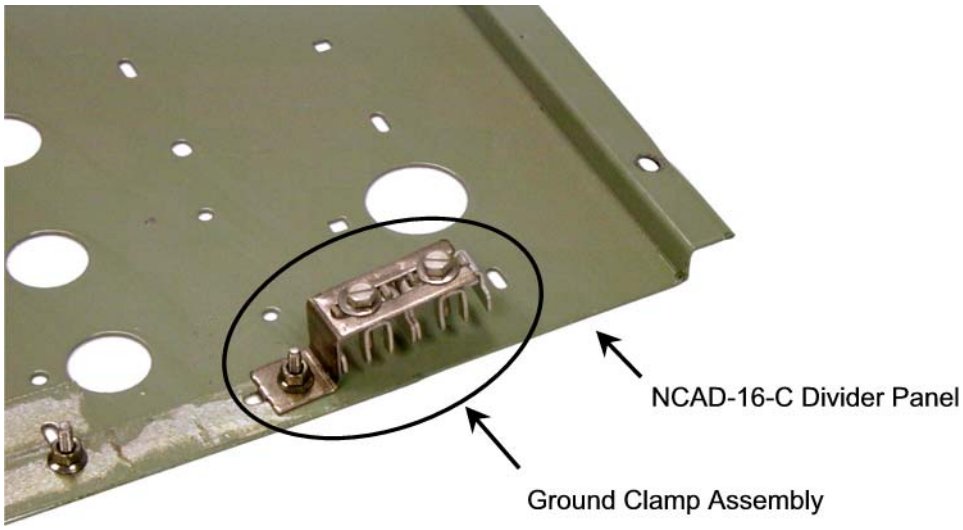

Figure 16. NCAD-16-C Divider Panel and Ground Clamp Assembly

2. Remove one of the ground clamps (Figure 17) and its bolt from the ground clamp assembly.

Figure 17. Ground Clamp

3. Attach the ground clamp to the center hole in the ground bar using the same bolt that secured the ground clamp to the grounding assembly. Do not tighten the ground clamp until the ground wires have been inserted into the clamp. Remove any other screws installed in the ground bar.
4. Follow local practice to remove the paint around the bottom set of holes on the front rails of the pedestals (Figure 18).
5. Mount the ground bar to the pedestal rail holes prepared in step 4 using ¼-20 x ¾" hardware included with the pedestal.

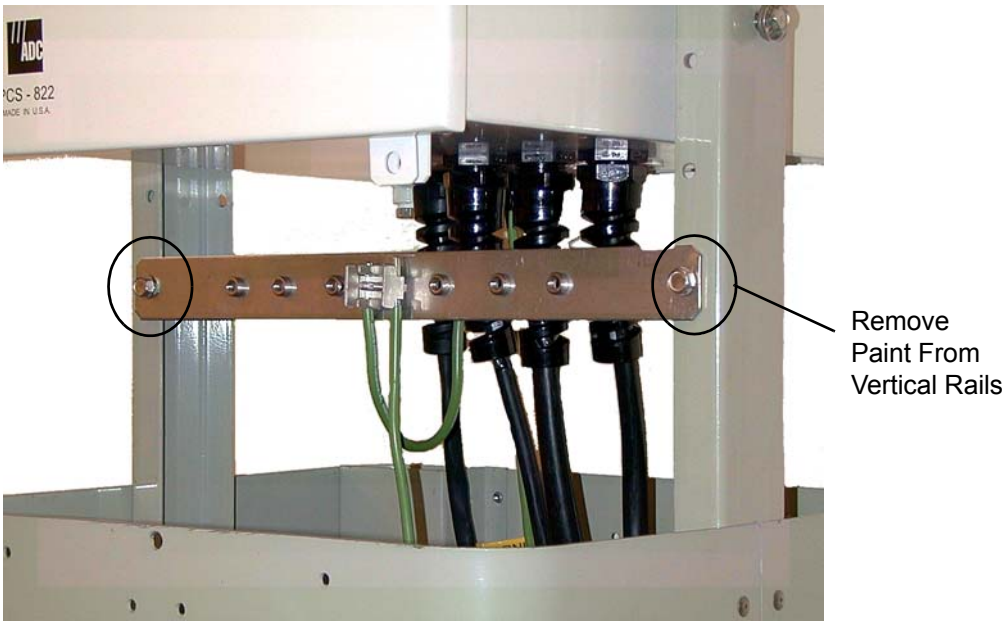

Figure 18. Mounting the Ground Bar to the Pedestal

6. Cut the green ground wire from the Field Shelf approximately 12" from the bottom of the Field Shelf.
7. Remove ½" of insulation from the attached 12" stub and from the reminder of the cut ground wire.
8. Insert both pieces of ground wire into the left and right sides of the ground clamp.
9. Use a 216 tool to tighten the ground clamp.
10. Follow local practice to terminate the butt end of the cut ground wire to an appropriate ground.

CABLE LOCATIONS

Figure 19 shows a front view of the Field Shelf and identifies the cable locations. Refer to Table 3 on page 13 for Field Shelf cable wire gauges and lengths.

WARNING

Use caution when bending the cable to avoid kinking the cable and damaging the shielding and/or insulation.

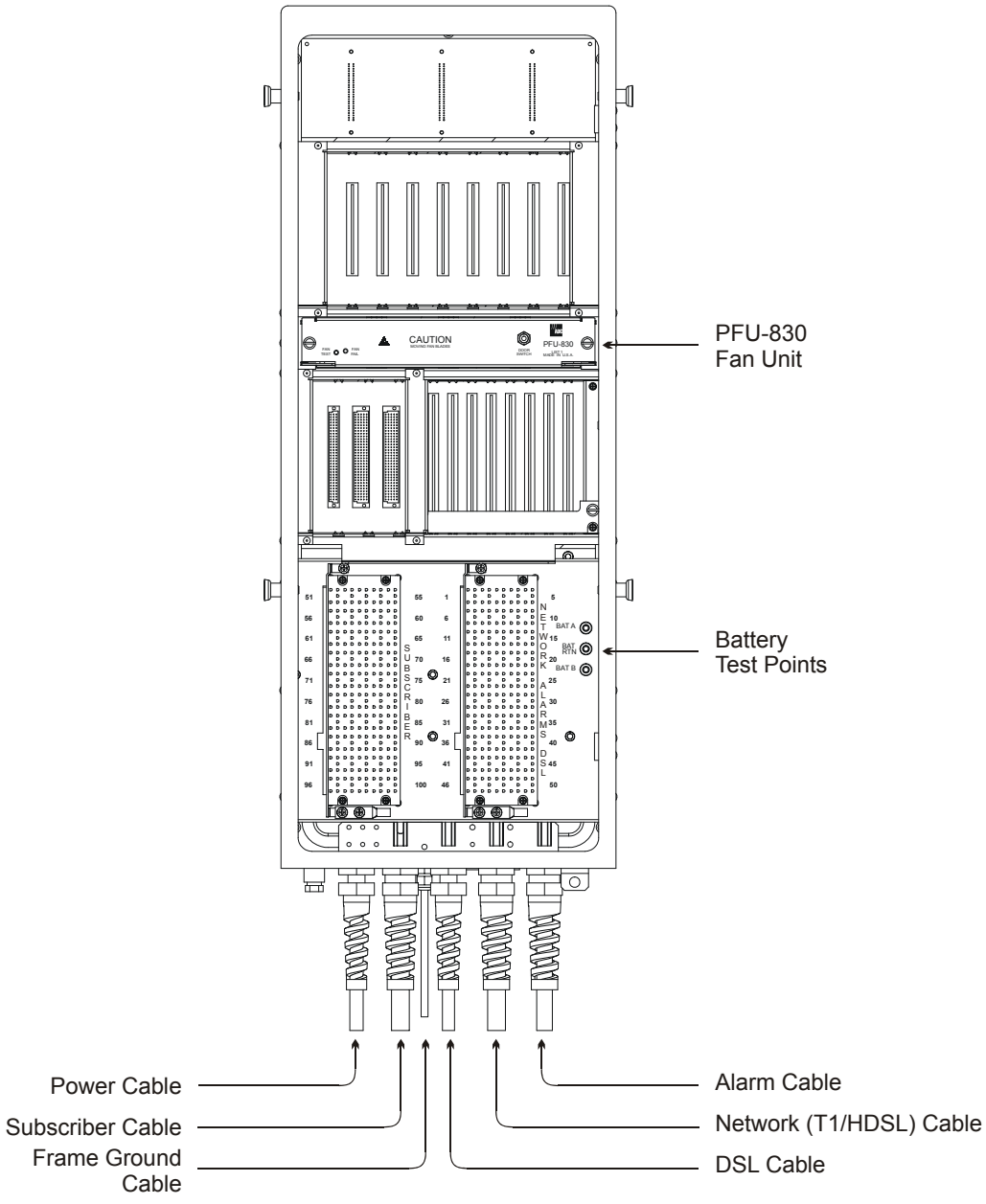

Figure 19. Field Shelf Cable and Fan Unit Installation

PFU-830 Fan Unit

The PFU-830 fan unit provides two fans for cooling the Field Shelf (Figure 20). It contains Fan Alarm and Door Alarm circuits to report a fan failure or a open door condition to the Management Unit. The PFU-830 has an on-board thermal sensor to measure temperature and operates the fans as needed. A manual fan test may be initiated by pressing the “FAN TEST” switch for at least four seconds. The fan low rpm alarm circuit is disabled for the first few seconds after test activation to allow the fans to attain operating speed, avoiding a false low rpm alarm. If the fan fail LED remains off after holding the fan test button down for four seconds or more, then the fan unit has passed the fan test. If there is a fan failure, the fan fail LED is lit continuously, indicating that the PFU-830 fan unit should be replaced.

The PFU-830 provides secondary protection for the following signals (Figure 11 on page 11):

- Door Alarm Output
- Critical Alarm Output
- Major Alarm Output
- Minor Alarm Output
- Fan Alarm Output
- External Miscellaneous Alarm Input
- External Miscellaneous Alarm Output
- AC Power Alarm Input
- AC Power Alarm Output

The PFU-830 fan unit must be installed for the Field Shelf alarms to be activated and to ensure proper cooling. Subscriber services are not interrupted while the fan unit is being replaced.

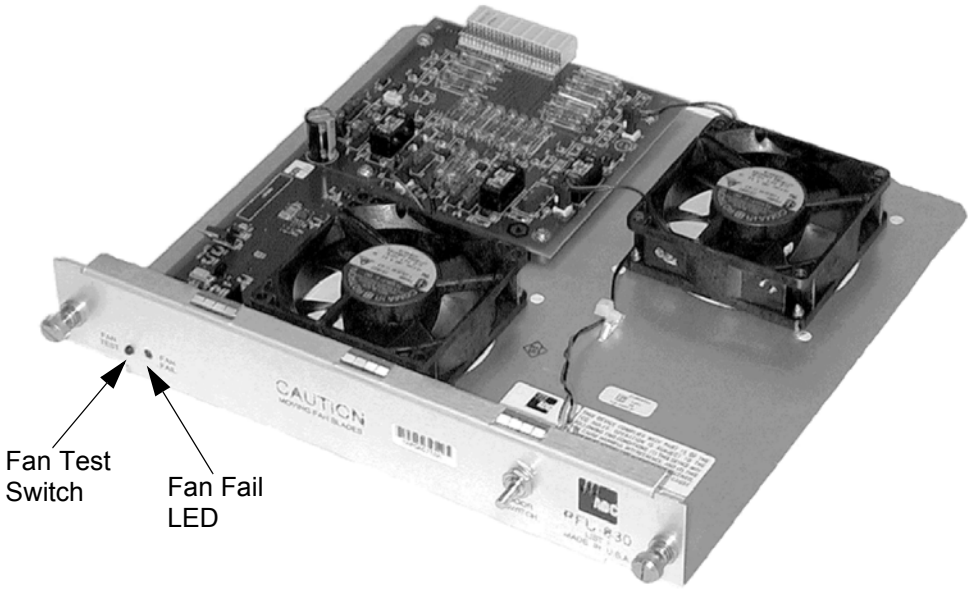

Figure 20. PFU-830 Fan Unit

PCT-850 CARDS

Use the PCT-850 with DSX-1 operation or replace the PCT-850 with the appropriate T1, HDSL or HDSL2 interface cards (Figure 21).

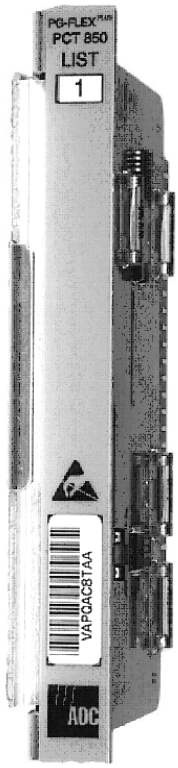

Figure 21. PCT-850 Card

NETWORK LINES

The PCS-822 supports up to eight network circuits that are routed on an internally screened 28-pair cable. This screen isolates the network receive lines from the network transmit lines to avoid crosstalk problems (Table 4 on page 23).

CAUTIO ***If you use a PCT-850 card with any input signal other than a DSX-1, the MUX card may be damaged. This type of damage is not covered by the ADC warranty.***

The NIU and MUX must be configured for the same frame format and line code for correct operation.

Table 4. Network Screened Cable Circuit Assignments

NETWORK SCREENED CABLE CIRCUIT ASSIGNMENTS						
Circuit ID		Protector Socket	Cable Stub		NIU	Description
			Tip	Ring		
1		1	WH	BL	1	Tx Side 2 / HDSL Loop 2
2		2	WH	OR	2	Tx Side 2 / HDSL Loop 2
3		3	WH	GN	3	Tx Side 2 / HDSL Loop 2
4		4	WH	BN	4	Tx Side 2 / HDSL Loop 2
5		5	WH	SL	5	Tx Side 2 / HDSL Loop 2
6		6	RD	BL	6	Tx Side 2 / HDSL Loop 2
7		7	RD	OR	7	Tx Side 2 / HDSL Loop 2
8		8	RD	GN	8	Tx Side 2 / HDSL Loop 2
9			RD	BN		
10			RD	SL		
11			BK	BL		
12			BK	OR		
SP 1			RD	WH		
SP 2			BK	WH		
13		11	BK	GN	1	Rx Side 1 / HDSL Loop 1
14		12	BK	BN	2	Rx Side 1 / HDSL Loop 1
15		13	BK	SL	3	Rx Side 1 / HDSL Loop 1
16		14	YL	BL	4	Rx Side 1 / HDSL Loop 1
17		15	YL	OR	5	Rx Side 1 / HDSL Loop 1
18		16	YL	GN	6	Rx Side 1 / HDSL Loop 1
19		17	YL	BN	7	Rx Side 1 / HDSL Loop 1
20		18	YL	SL	8	Rx Side 1 / HDSL Loop 1
21			VI	BL		
22			VI	OR		
23			VI	GN		
24			VI	BN		
SP 1			RD	WH		
SP 2			BK	WH		

DSL LINES

Sixteen DSL pairs are routed out of the PCS-822 on one 25-pair cable. Each COLU slot receives two pairs (Table 5).

Table 5. DSL Cable Circuit Assignments

DSL CABLE CIRCUIT ASSIGNMENTS							
Circuit ID		Protector Socket	Cable Stub		Slot	System	
			Tip	Ring		DUAL COLU	24 Channel
1		35	WH	BL	1	1-A - DSL	1 - PWR 1
2		36	WH	OR		1-B - DSL	1 - PWR 2
3		37	WH	GN	2	2-A - DSL	1 - DSL 1
4		38	WH	BN		2-B - DSL	1 - DSL 2
5		39	WH	SL	3	3-A - DSL	2 - PWR 1
6		40	RD	BL		3-B - DSL	2 - PWR 2
7		41	RD	OR	4	4-A - DSL	2 - DSL 1
8		42	RD	GN		4-B - DSL	2 - DSL 2
9		43	RD	BN	5	5-A - DSL	3 - PWR 1
10		44	RD	SL		5-B - DSL	3 - PWR 2
11		45	BK	BL	6	6-A - DSL	3 - DSL 1
12		46	BK	OR		6-B - DSL	3 - DSL 2
13		47	BK	GN	7	7-A - DSL	4 - PWR 1
14		48	BK	BN		7-B - DSL	4 - PWR 2
15		49	BK	SL	8	8-A - DSL	4 - DSL 1
16		50	YL	BL		8-B - DSL	4 - DSL 2
17			YL	OR			
18			YL	GN			
19			YL	BN			
20			YL	SL			
21			VI	BL			
22			VI	OR			
23			VI	GN			
24			VI	BN			
25			VI	SL			

SUBSCRIBER CABLE

Table 6 shows the pinouts for the subscriber cable (for FRP-806 applications only).

Table 6. Subscriber Cable Circuit Assignments

SUBSCRIBER CABLE CIRCUIT ASSIGNMENTS							
Telephone No. / Cable Pair		Protector Socket	Cable Stub			Slot	Circuit
			Binder	Tip	Ring		
1		51	BLUE	WH	BL	1	1
2		52		WH	OR		2
3		53		WH	GN		3
4		54		WH	BN		4
5		55		WH	SL		5
6		56		RD	BL		6
7		57		RD	OR	2	7
8		58		RD	GN		8
9		59		RD	BN		9
10		60		RD	SL		10
11		61		BK	BL		11
12		62		BK	OR		12
13		63		BK	GN	3	13
14		64		BK	BN		14
15		65		BK	SL		15
16		66		YL	BL		16
17		67		YL	OR		17
18		68		YL	GN		18
19		69		YL	BN	4	19
20		70		YL	SL		20
21		71		VI	BL		21
22		72		VI	OR		22
23		73		VI	GN		23
24		74		VI	BN		24
25				VI	SL		

SUBSCRIBER CABLE CIRCUIT ASSIGNMENTS							
Telephone No. / Cable Pair		Protector Socket	Cable Stub			Slot	Circuit
			Binder	Tip	Ring		
26		75	ORANGE	WH	BL	5	1
27		76		WH	OR		2
28		77		WH	GN		3
29		78		WH	BN		4
30		79		WH	SL		5
31		80		RD	BL		6
32		81		RD	OR	6	7
33		82		RD	GN		8
34		83		RD	BN		9
35		84		RD	SL		10
36		85		BK	BL		11
37		86		BK	OR		12
38		87		BK	GN	7	13
39		88		BK	BN		14
40		89		BK	SL		15
41		90		YL	BL		16
42		91		YL	OR		17
43		92		YL	GN		18
44		93		YL	BN	8	19
45		94		YL	SL		20
46		95		VI	BL		21
47		96		VI	OR		22
48		97		VI	GN		23
49		98		VI	BN		24
50				VI	SL		

ALARM LEADS

The PCS-822 supports two general purpose alarm inputs and six alarm outputs. The use of these alarms is flexible and depends on the provisioning of the Management Unit. Refer to the appropriate Management Unit documentation for further information.

The input and output alarms are routed out of the PCS-822 on the alarm cable. Each alarm is connected to a pair of wires (Table 7).

Table 7. Alarm Cable Circuit Assignments

ALARM CABLE CIRCUIT ASSIGNMENTS					
Circuit ID		Protector Socket	Cable Stub		
			NO	Com	Description
1		21	WH	BL	FAN ALARM OUT
2		22	WH	OR	DOOR ALARM OUT
3		23	WH	GN	TEST TIP / RING
4			WH	BN	
5		25	WH	SL	MISC ALARM IN
6		26	RD	BL	AC POWER ALARM OUT
7		27	RD	OR	MISC ALARM OUT
8		28	RD	GN	CRITICAL ALARM OUT
9		29	RD	BN	MAJOR ALARM OUT
10		30	RD	SL	MINOR ALARM OUT
11			BK	BL	
12			BK	OR	

PROTECTION BLOCK

Network, DSL and alarm lines are routed through the right hand protection block. Subscriber drops are routed through the left hand block (FPR-806 applications only) (Figure 22).

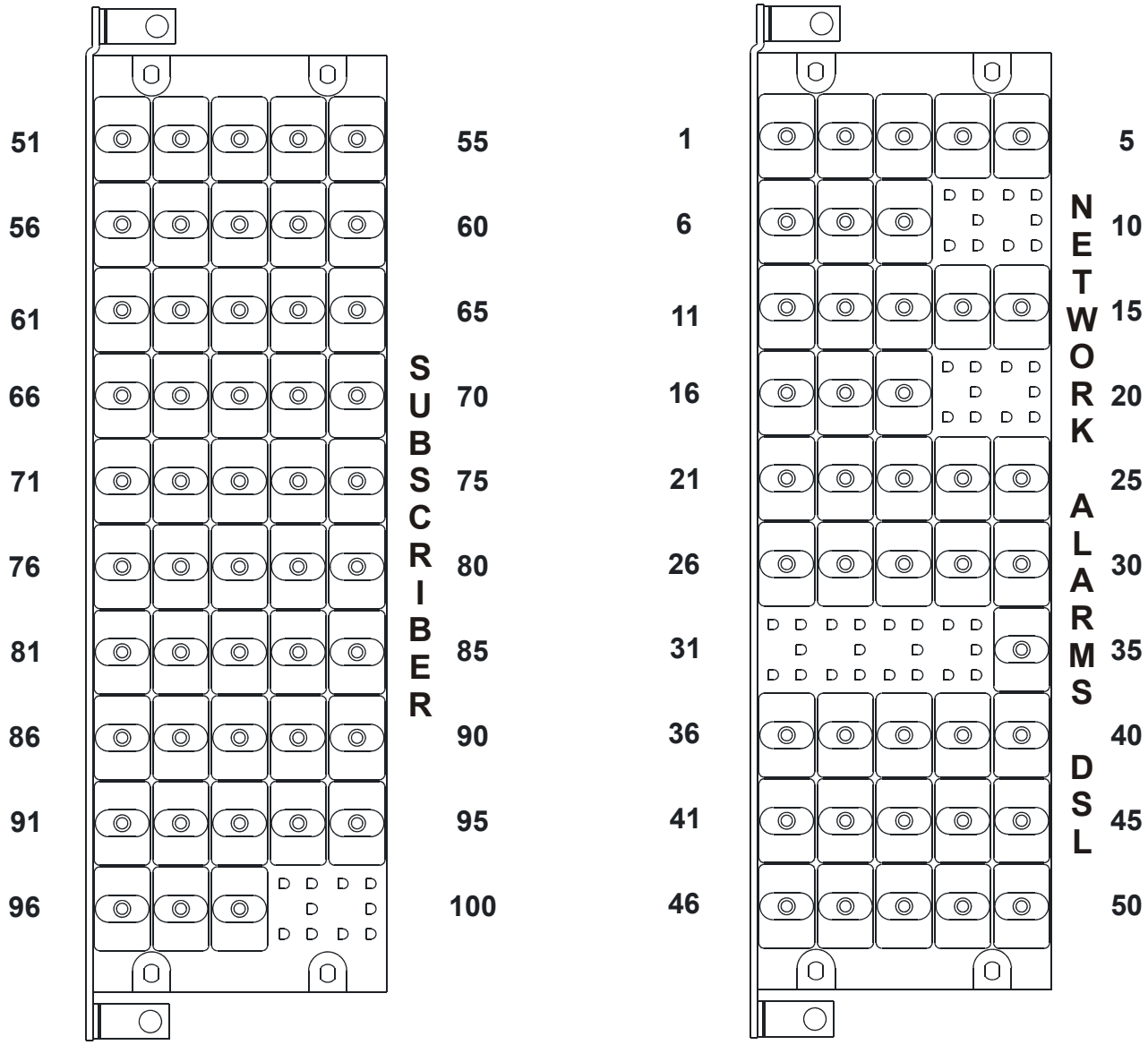

Figure 22. Protection Block

POWER

The Field Shelf uses –48 Vdc power and must be fused at the source. The fuse rating depends on the services provided by the PCS-822. Refer to Table 9 on page 30 for fusing recommendations.

DANGER ***Failure to properly fuse the PCS-822 can result in personal harm, damage to equipment, or loss of service.***

DANGER ***There is a shorting bar that is installed between BAT A and BAT B of the Field Shelf. If only BAT A is connected, -48 Vdc will also appear on the unterminated end of BAT B wire. Remove the shorting bar to provide redundant power through the BAT A and BAT B leads. Access to this shoring bar is achieved by removal of the Field Shelf rear panel.***

DC Power Connections

The power is connected through a power cable that provides connections for dual –48 Vdc and common battery return (Table 8). The power cable wires are identified by the numbers 1, 2 and 3 and also by the words one, two and three printed on the wires (Figure 23). The 200-mechanics slots are wired only to the A Battery supply (Note on page 1).

Table 8. Power Cable

POWER CABLE CIRCUIT ASSIGNMENTS			
PAIR #	PROTECTOR SOCKET	COLOR	DESCRIPTION
1		WHITE 1	BATTERY A
		BLACK 1	BATTERY A RETURN
2		WHITE 2	BATTERY B
		BLACK 2	BATTERY B RETURN
3	24	WHITE 3	AC POWER ALARM IN (NO)
		BLACK 3	AC POWER ALARM IN (COM)

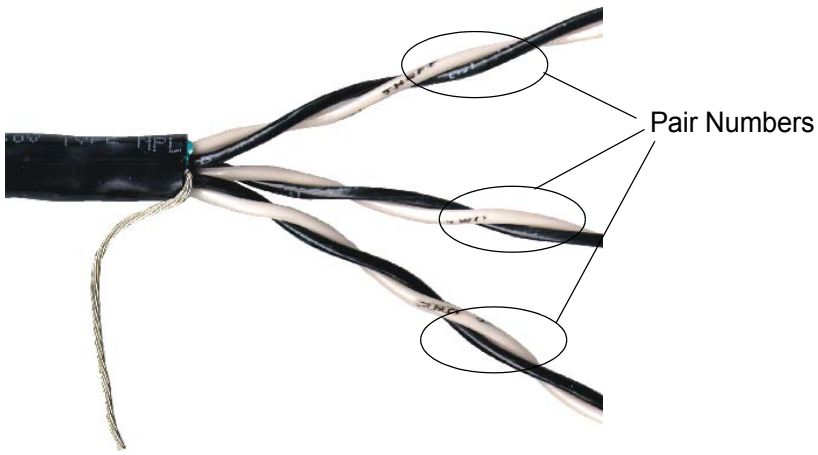

Figure 23. PCS-822 3-Pair Power Cable

Powering the System

Table 9 summarizes the powering requirements and heat dissipation for the PSC-822 when it is fully populated with a battery voltage of –48.0 V, and with all CO to RT distances at their maximum DSL reach. The table provides the average current drawn for a fully populated Field Shelf under these conditions.

The conditions in Table 9 assume that the POTS lines at all customer sites are off hook.

Each configuration assumes the use of one Management Unit and 2 MUXs (Table 9).

Table 9. PCS-822 Field Shelf Power Consumption and Heat Dissipation

Service	Models	Input Current[a]	Fuse[b]	Heat Dissipation
4 POTS (dual)	PLL-735 PRL-770	4.9 A	7.5 A	82.6 W
6 POTS (dual)	PLL-735 PRL-771	6.0 A	10.0 A	90.1 W
3 POTS, 1 ISDN (dual)	PLL-735 PRL-772	4.7 A	7.5 A	84.0 W
2 ISDN (dual)	PLL-735 PRL-773	3.8 A	7.5 A	81.6 W
6 UVG (dual)	PLL-735 PRL-779	5.1 A	7.5 A	99.0 W
24 POTS [c] (No Doublers)	FLL-814 FRL-842	5.7 A	10.0 A	82.2 W
24 POTS [c] (1 Doubler)	FLL-814 FRL-842	7.1 A	10.0 A	92.0 W
24 POTS [c] (2 Doublers)	FLL-814 FRL-842	8.4 A	12.0 A	101.2 W
24 POTS[d] (No Doublers)	FLL-814 FRL-842	4.9 A	7.5 A	76.7 W
24 POTS [d] (1 Doubler)	FLL-814 FRL-842	5.7 A	10.0 A	82.8 W
24 POTS [d] (2 Doublers)	FLL-814 FRL-842	6.6 A	10.0 A	88.6 W
3 POTS/1 ADSL	ALU-935 ARB-963	5.6 A	7.5 A	99.4 W
6 POTS/1 ADSL	ALU-935 ARB-964	6.1 A	10.0 A	93.0 W
8 ADSL (Dual)	ALU-935 ARL-942	7.1 A	10.0 A	101.3 W

a. Indicates the current when all lines are off hook with all DSL lines at maximum length with -48 Vdc battery
b. Indicates the recommended fuse for -42.5 Vdc battery and 15% fuse margin
c. Indicates the subscriber drop set for LONG is ≤ 960 Ω
d. Indicates the subscriber drop set for SHORT is ≤ 830 Ω

Please refer to the appropriate AMX/PMX and AMU/PMU Technical Practice for system configuration options.

ACRONYMS

A

ADSL – Asynchronous Digital Subscriber Line

B

BAT – Battery

BATRTN – Battery Return

C

CLEI – Common Language Equipment Identifier

CO – Central Office

D

DDL – Derived Data Link

DLC – Digital Loop Carrier

DS0 – Digital Signal Level 0

DS1 – Digital Signal Level 1

DSL – Digital Subscriber Line

DSLAM – Digital Subscriber Line Access Multiplexer

DSX-1 – Digital Subscriber Cross-Connect Level 1

E

ESD – Electrostatic Discharge

F

FGND – Frame Ground

H

HDSL – High-bit-rate Digital Subscriber Line

I

IAD – Integrated Access Device

M

MLT – Mechanized Loop Testing

MUX – Multiplexer Unit

N

NEBS – Network Equipment Building Services

NID – Network Interface Device

P

POTS – Plain Old Telephone Service

R

RAM – Remote Access Module

RMA – Return Material Authorization

RT – RemoteTerminal

S

SHDSL – Synchronous High Speed Digital Subscriber Loop

T

TDM – Time Division Multiplexer

X

xDSL – Digital Subscriber Line

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
   - Shipping address to which ADC should return the repaired equipment
   - Original purchase order number
   - 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.
   - 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 any other 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 B COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.

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