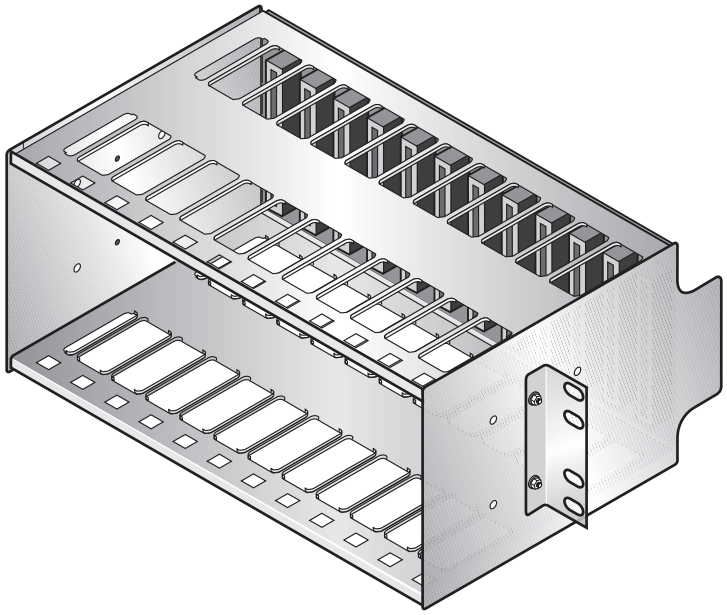
HiGain CO Management Shelf

Model	List Number	Part Number
HMS-318	2B	150-1129-22



PairGain Technologies, Inc.
Engineering Services Technical Practice
Section 150-318-122-01

Revision History of This Practice
Revision 01—December 22, 1997
A) Initial Release

PairGain

USING THIS TECHNICAL PRACTICE

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

Notes contain information about special circumstances.

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

TABLE OF CONTENTS

OVERVIEW

This practice provides installation instructions for the PairGain® HMS-318 List 2B HiGain® Management Shelf.

Shelf Descriptions

The HMS-318 List 2B has the following features (Figure 1):

- houses a maximum of 22 HLU-319 line units and one HMU-319 management unit
- is 16.3 cm high x 30.5 cm deep x 44.2 cm wide, exclusive of mounting brackets
- is equipped with:
  - brackets for mounting on JIS-style racks (The brackets have adjustable mounts that allow the shelf penetration to conform to existing equipment.)
  - a kit including a set of four M5x0.8 by 10 mm mounting screws
  - a kit including BNC T-connector and 50Ω BNC termination

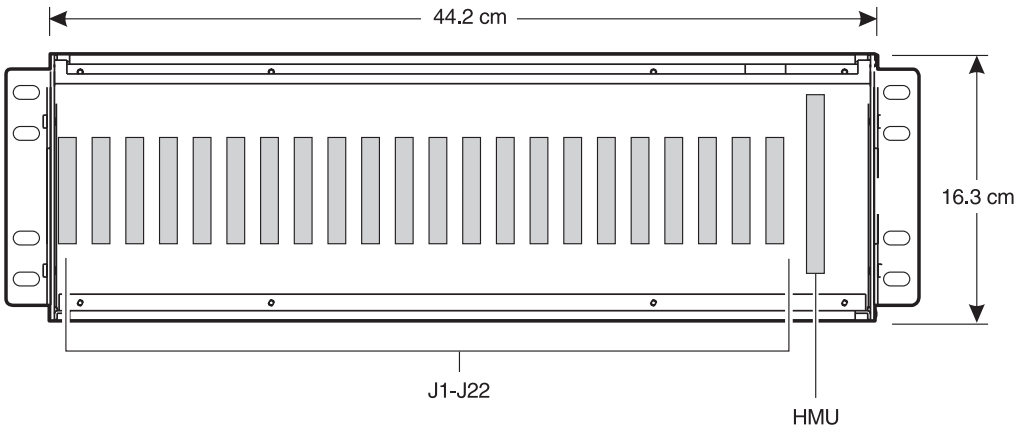


Figure 1. *HMS-318 List 2B Front View*

Shelf Connections

Both connectors and wire-wrap pins are provided for connecting to the DSX-1 and HDSL spans (Figure 2 and Figure 3).

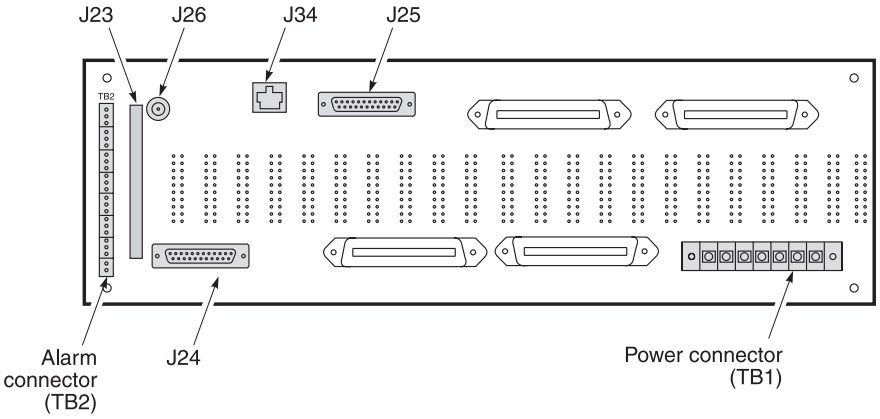


Figure 2. *HMS-318 List 2B Connector Locations*

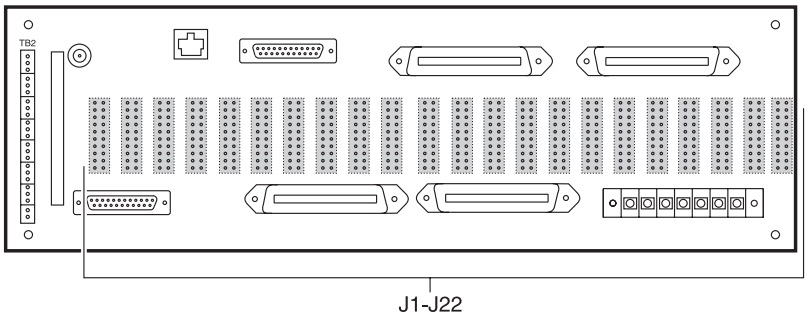


Figure 3. *HMS-318 List 2B HLU Wire-Wrap Pins*

Table 1 lists the connectors and terminal strip identities for the shelf. Signal and pin assignments for these connections are listed in Tables 2 through 5, on pages 7 through 10.

Table 1. *HMS-318 Connectors*

Identifier	Connector Type	Definition
P1	Amphenol 50-pin Male	DSX-1 Receive
P2	Amphenol 50-pin Male	DSX-1 Transmit
P3	Amphenol 50-pin Male	HDSL Span Loop 1
P4	Amphenol 50-pin Male	HDSL Span Loop 2
J1-J22	20-pin wire-wrap	HLU connectors
J23	DIN 96-pin Female	HMU connector
J24	RS-232 DB-25 (Female)	OS Craft Port (DTE)
J25	RS-232 DB-25 (Female)	AUX Craft Port (DTE)
J26	BNC	10BASE-2 Ethernet LAN connector
J34	RJ-45	10BASE-T Management Network port
TB1	9-pos. Terminal Block	Power connector
TB2	22-pin wire-wrap	Alarm connector

Power and Alarm Connections

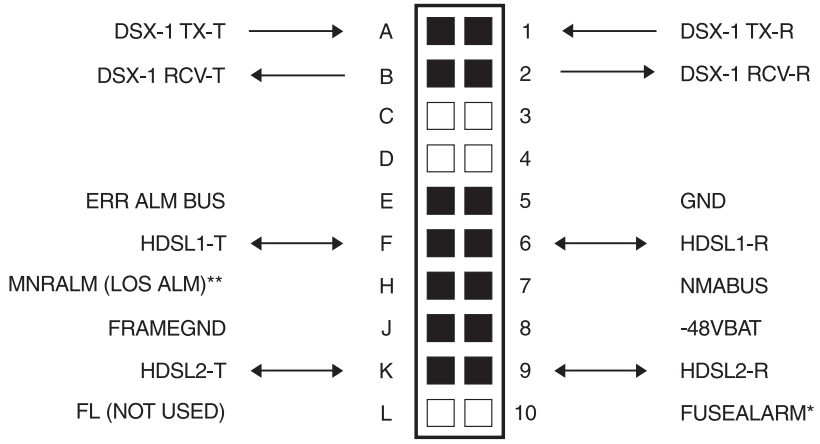
Each shelf provides power (TB1) and alarm (TB2) connections.

DSX-1 and HDSL Connections Using Plug-In Connectors

The rear of each shelf includes four male 50-pin (HMS-318) Amphenol-type connectors for DSX-1 Receive and Transmit (P1 and P2) and HDSL Spans Loop1 and Loop 2 (P3 and P4). These provide Tip and Ring connections for all cards in the shelf. (Use 50-pin mating female connectors, AMP Kit No. 2-22913-1 for 24 - 26 AWG.)

DSX-1 and HDSL Wire-Wrap Connections

DSX-1 and HDSL line unit connections can also be made to the individual card connectors by wire-wrap pins (0.045 inch/1.14 mm). Straps for cable dressings and a protective Lexan rear cover are provided. Figure 4 shows the line unit slot pinouts on the HMS backplane.



* Fuse alarm is normally floating and at -48V (10 mA maximum) when activated.
** Minor alarm output is normally floating and at +5V (10 mA maximum) when activated.

Figure 4. *HMS-318 List 2B Line Unit Pinouts*

Management Asynchronous Ports

J24 and J25 are two RS-232 communication ports that allow two optional management systems to be connected to the HiGain system. Consult the HMU-319 List 5B technical practice for use of the two communication parts.

Multishelf Network Connector

One BNC connector on the backplane allows several shelves to be chained together into an integrated network through a 10BASE-2 (IEEE 802.3) Ethernet LAN. The connector is J26.

Management Network Port

An RJ-45 (J34) is used to connect the management card to a 10BASE-T Ethernet management network.

INSTALLATION

This section contains site requirements and installation instructions for the HMS-318 List 2B.

Site Requirements

Two busses provide the -48 Vdc shelf battery feed: -48VA and 48VB. Each bus should be fused at 10 Amperes.

Shelf Installation

Use the following procedure to install the HMS-318 shelf:

1. Secure the shelf in the bay using the shelf's mounting brackets.
2. Connect frame ground (FG) according to local grounding practices.
3. Connect the HDSL and DSX-1 inputs to the shelf using one of the following methods:
   - Plug the DSX-1 interface cables into P1 and P2 and the HDSL interface cables into P3 and P4 (Figure 2 on page 2). Span connections are listed in Tables 2 through 5 on pages 7 through 10. Table 6 on page 11 shows the standard PIC cable color codes.
   - Wire-wrap the DSX-1 and HDSL inputs to the appropriate individual card slots. Pin assignments are listed in "Signal and Pin Assignments" on page 6.
4. Connect the power and optional fan inputs to TB1 as shown in Figure 5. Slots 1 through 11 are powered by the -48VA bus, and slots 12 through 22 are powered by the -48VB bus. The two GND terminals are tied together. The HMU-319 is diode-OR'ed to both power busses, to guard against power failure in the event that one supply is lost.

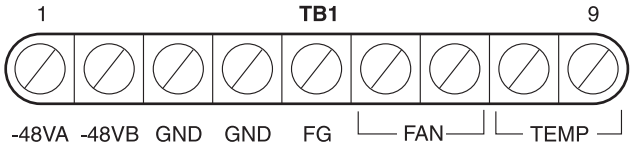


Figure 5. *Terminal Strip TB1*

5 Connect the optional alarm inputs to TB2 as shown in Figure 6.

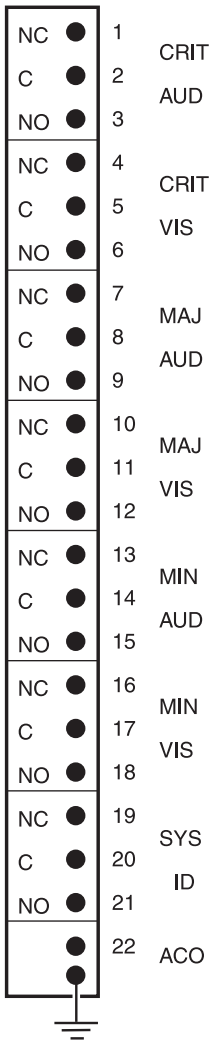


Figure 6. *Terminal Strip TB2*

6 Install the line units and the HMU-319 management unit in the shelf, as described in the applicable practices.

SIGNAL AND PIN ASSIGNMENTS

This section includes the following tables of signal and pin assignments:

Table 2. *P1 - DSX-1 Receive (Tip and Ring)*

Cable Pin No.	Slot	Card Pin No.	Cable Pin No.	Slot	Card Pin No.
26	1	B (Tip)	37	12	B
1		2 (Ring)	12		2
27	2	B	38	13	B
2		2	13		2
28	3	B	39	14	B
3		2	14		2
29	4	B	40	15	B
4		2	15		2
30	5	B	41	16	B
5		2	16		2
31	6	B	42	17	B
6		2	17		2
32	7	B	43	18	B
7		2	18		2
33	8	B	44	19	B
8		2	19		2
34	9	B	45	20	B
9		2	20		2
35	10	B	46	21	B
10		2	21		2
36	11	B	47	22	B
11		2	22		2

Table 3. *P2 - DSX-1 Transmit (Tip and Ring)*

Cable Pin No.	Slot	Card Pin No.	Cable Pin No.	Slot	Card Pin No.
26	1	A (Tip)	37	12	A
1		1 (Ring)	12		1
27	2	A	38	13	A
2		1	13		1
28	3	A	39	14	A
3		1	14		1
29	4	A	40	15	A
4		1	15		1
30	5	A	41	16	A
5		1	16		1
31	6	A	42	17	A
6		1	17		1
32	7	A	43	18	A
7		1	18		1
33	8	A	44	19	A
8		1	19		1
34	9	A	45	20	A
9		1	20		1
35	10	A	46	21	A
10		1	21		1
36	11	A	47	22	A
11		1	22		1

Table 4. *P3 - HDSL Loop 1 (Tip and Ring)*

Cable Pin No.	Slot	Card Pin No.	Cable Pin No.	Slot	Card Pin No.
26	1	F (Tip)	37	12	F
1		6 (Ring)	12		6
27	2	F	38	13	F
2		6	13		6
28	3	F	39	14	F
3		6	14		6
29	4	F	40	15	F
4		6	15		6
30	5	F	41	16	F
5		6	16		6
31	6	F	42	17	F
6		6	17		6
32	7	F	43	18	F
7		6	18		6
33	8	F	44	19	F
8		6	19		6
34	9	F	45	20	F
9		6	20		6
35	10	F	46	21	F
10		6	21		6
36	11	F	47	22	F
11		6	22		6

Table 5. *P4 - HDSL Loop 2 (Tip and Ring)*

Cable Pin No.	Slot	Card Pin No.	Cable Pin No.	Slot	Card Pin No.
26	1	K (Tip)	37	12	K
1		9 (Ring)	12		9
27	2	K	38	13	K
2		9	13		9
28	3	K	39	14	K
3		9	14		9
29	4	K	40	15	K
4		9	15		9
30	5	K	41	16	K
5		9	16		9
31	6	K	42	17	K
6		9	17		9
32	7	K	43	18	K
7		9	18		9
33	8	K	44	19	K
8		9	19		9
34	9	K	45	20	K
9		9	20		9
35	10	K	46	21	K
10		9	21		9
36	1	K	47	22	K
11		9	22		9

Table 6. *Standard Pic Color Code*

Pair No.	Tip	Ring
1	White	Blue
2		Orange
3		Green
4		Brown
5		Slate
6	Red	Blue
7		Orange
8		Green
9		Brown
10		Slate
11	Black	Blue
12		Orange
13		Green
14		Brown
15		Slate
16	Yellow	Blue
17		Orange
18		Green
19		Brown
20		Slate
21	Violet	Blue
22		Orange
23		Green
24		Brown
25		Slate
26	White	Blue
27		Orange
28		Green

Table 7. *J24 - OS Craft Port (DTE)*

Pin No.	Signal	Direction
2	Transmit Data (TD)	Out
3	Receive Data (RD)	In
6	Data Set Ready (DSR)	In
7	Ground (GND)	—
20	Data Terminal Ready (DTR)	Out

The HMU-319 requires that DSR be asserted by the connected DCE for communications on this port. The HMU-319 always asserts DTR on this port.

Table 8. *J25 - AUX Craft Port (DTE)*

Pin No.	Signal	Direction
2	Transmit Data (TD)	Out
3	Receive Data (RD)	In
6	Data Set Ready (DSR)	In
7	Ground (GND)	—
20	Data Terminal Ready (DTR)	Out

The HMU-319 requires that DSR be asserted by the connected DCE for communications on this port. The HMU-319 always asserts DTR on this port.

CERTIFICATION AND WARRANTY

The HMS-318 List 2B is VCCI certified and UL listed. Information on certification and warranty is shown below.

VCCI Certification

This equipment has been tested and found to comply with the limits for VCCI Class A Requirements. 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 this instruction manual, may cause harmful interference to radio communication.

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.

UL Listing

The HMS-318 List 2B is listed with the Underwriter Laboratory.

Use caution when installing or modifying telephone lines. Dangerous voltages may be present. Do not install telephone wiring during a lightning storm. Always disconnect telephone lines and power connections from wall outlets before servicing or disassembling this equipment.

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

Warranty

PairGain Technologies, Incorporated warrants its products to be free of defective and faulty workmanship for a period of 60 months, under normal use, from the date of shipment. PairGain's obligation, under this warranty, is limited to replacing or repairing, at PairGain's option, any such product which is returned during the warranty period per PairGain's instructions and which product, in PairGain's sole opinion, is determined to be defective upon examination at our plant.

The transportation charges from the Buyer to PairGain will be prepaid by the Buyer. When the equipment is shipped back to the Buyer, PairGain will pay the charges, unless no trouble is found (NTF), in which case the buyer will pay for the shipment.

PairGain may use reconditioned parts for such repair or replacement. This warranty ***does not*** apply to any product which has been repaired, worked upon, or altered by persons not authorized by PairGain or in PairGain's sole judgment has subjected to misuse, accident, fire or other casualty, or operation beyond its design range.

Repaired products have a 90-day warranty, or until the end of the original warranty period--whichever period is greater.

Modules sent to PairGain for repair will be repaired or replaced and returned to you as soon as possible. Normally, current products are repaired within 14 calendar days, and out-of-production products are repaired within 30 calendar days.

TECHNICAL SUPPORT

PairGain provides technical support by phone, fax, and the World Wide Web.

Phone or Fax

PairGain Technical Assistance is available 24 hours a day, 7 days a week by contacting PairGain's Customer Service Engineering group at one of the following numbers:

- Telephone: (800) 638-0031
  (714) 832-9922
- Fax: (714) 832-9924

A Customer Service Engineer answers technical assistance calls Monday through Friday between 8:00 AM and 5:00 PM, Pacific Time, excluding holidays. At all other times, an on-duty Customer Service Engineer returns technical assistance calls within 30 minutes.

Returns

To return equipment to PairGain:

1 Locate the number of the purchase order under which the equipment was purchased. You will need to provide this number to PairGain Customer Service to obtain a return authorization.

2 Call or write PairGain Customer Service to ask for a Return Material Authorization (RMA) number and any additional instructions. Use the telephone or fax number listed below:

- Telephone: (800) 370-9670
- Fax: (714) 730-2961

3 Include the following information, in writing, along with the equipment you are returning:

- Company name, address, and the name of a person PairGain can contact regarding this equipment.
- The purchase order number provided to Customer Service when the RMA number was requested.
- A description of the equipment, as well as the number of units that you are returning. Be sure to include the model and part number of each unit.
- The shipping address to which PairGain should return the repaired equipment.
- The reason for the return:

  a) The equipment needs an ECO/ECN upgrade.

  b) 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.

  c) 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 PairGain's address and the Return Material Authorization Number you received from Customer Service clearly on the outside of the carton:

PairGain Technologies, Inc.
14352 Franklin Ave.
Tustin, CA 92780-7013

Attention: **CRF RMA (Number)**

World Wide Web

PairGain product, company, and application information can be found at http://www.pairgain.com using any Web browser.

Corporate Office

14402 Franklin Avenue
Tustin, CA 92780

Tel: (714) 832-9922
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For Technical Assistance:

(800) 638-0031

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