

1-Slot Assembled Access Unit Installation Instructions

Document Number 9000-A2-GN10-40

December 1998

Product Documentation on the World Wide Web

We provide complete product documentation online. This lets you search the documentation for specific topics and print only what you need, reducing the waste of surplus printing. It also helps us maintain competitive prices for our products.

Complete documentation for this product is available at www.paradyne.com.
Select *Service & Support* → *Technical Manuals* → *FrameSaver Frame Relay Devices*.

Select the following documents:

9121-A2-GB20

FrameSaver 9120 User's Guide

9121-A2-GH30

FrameSaver 9120 Technical Reference

9621-A2-GB20

FrameSaver 9620 User's Guide

9621-A2-GH30

FrameSaver 9620 Technical Reference

To request a paper copy of a Paradyne document:

- Within the U.S.A., call 1-800-PARADYNE (1-800-727-2396)
- Outside the U.S.A., call 1-727-530-8623

Before You Begin

Make sure you have:

- A dedicated, grounded power outlet that is protected by a circuit breaker within 6 feet of the access unit.
- A clean, well-lit, and ventilated site that is free from environmental extremes.
- One to two feet of clearance for cable connections.
- A physical connection to the frame relay network.
 - T1, if a 9120/9121 access unit.
 - DDS, if a 9620/9621 access unit.
- An async (asynchronous) terminal or PC (personal computer).

Package Checklist

Verify that your package contains the following:

- One-slot access unit
- One-slot access unit mounting hardware, if ordered
- Power cord with desktop power transformer
- COM port-to-PC cable (14')
- RJ48S (DDS) or RJ48C (T1) modular cable for network access (14')
- RJ49C ISDN-U cable, if an ISDN BRI DBM is installed (14')
- One V.35 DTE adapter cable for Port 1 (1')

Only one DTE cable is provided. Additional cables may need to be ordered.
See *Cables You May Need to Order*.

Cables You May Need to Order

If connecting to a . . .	Order a . . .	Model/Feature Number
T1 Line interface/connector (<i>For use in Canada</i>)	T1 line interface cable, RJ48C-to-CA81A	3100-F1-510
Terminal/Printer (DB25 interface/connector, EIA-232 connection)	COM Port-to-terminal/printer cable	3100-F2-540
DTE with a V.35 interface/connector	V.35 DTE adapter cable, EIA 232E/EIA 530A-to-V.35	3100-F1-570
DTE with a X.21 interface/connector	X.21 DTE adapter cable, EIA 530A-to-X.21	3100-F1-571
DTE with a RS449 interface/connector	RS449 DTE adapter cable (Port 1 or Port 2-to-DTE's RS449 interface), EIA 530A-to-RS449/442	3100-F1-580
LAN adapter	COM Port-to-LAN adapter cable	3100-F2-910

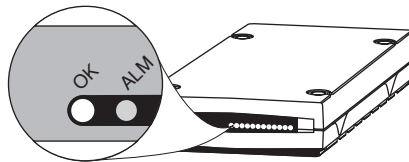
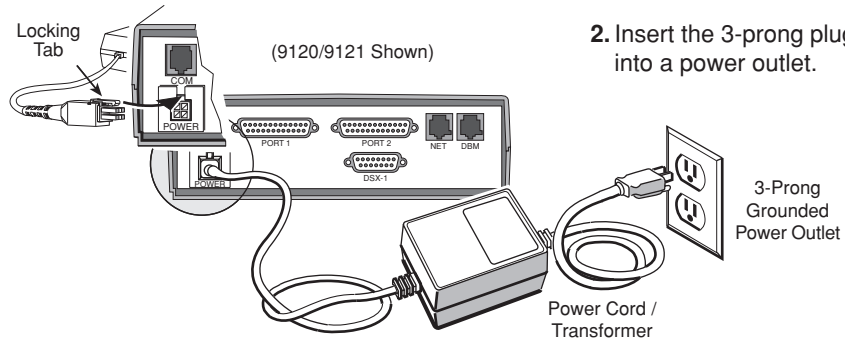
Contact your sales representative to order these cables.

Safety Instructions

Please refer to the *Important Safety Instructions* and *EMI Warnings* beginning on page 16.

Installing the Power Cord

1. Insert the 4-prong plug into the POWER jack. When inserting the plug at the rear of the access unit, align the plug with the notch above the POWER jack. Make sure the locking tab snaps securely into the jack.



3. The front panel OK LED lights once self-test is passed.

97-15452

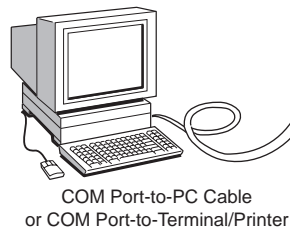
Connecting the COM Port to a User or Management Interface

The access unit must first be directly connected to a VT100-compatible terminal, or a PC or async terminal (providing VT100 terminal emulation) to set up management of the unit. You can set up just the communication (COM) port and protocol at this time, or you can completely configure the unit.

Refer to Chapter 4, *Setting Up*, in the Technical Reference for configuration information (Document Number 9621-A2-GH30 or 9121-A2-GH30).

1. Connect a PC or async terminal to the access unit's COM port.

To Connect to a PC, Async Terminal* or Printer:



a. Insert the 8-pin end of the cable into the COM port.

b. Insert the other end of the cable into the user or management interface.

c. Press Return on the keyboard to display the Main Menu.

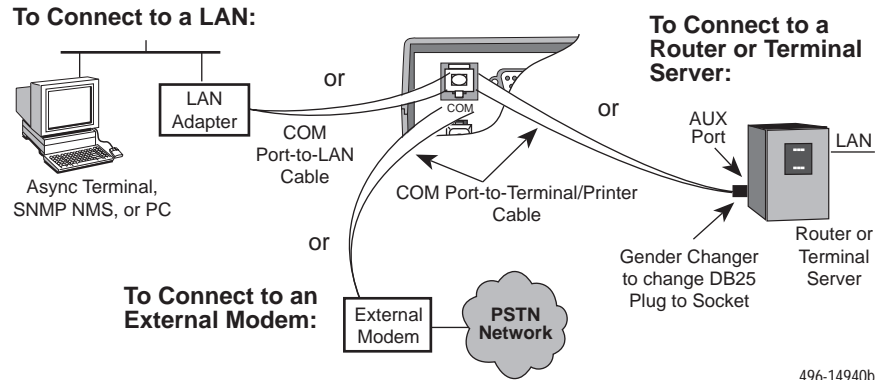
497-14940a-01

2. Reload the factory-set configuration options.
3. Edit the Communications Port configuration options.
4. Edit the Node IP Address option if management will be via a Telnet session, through a LAN adapter, router, or terminal server.
5. Configure a local DLCI between the access unit and the router for local management, if desired (typically at the central site).
6. If installing a 9120/9121 access unit, assign DS0s to the frame relay service.
7. If LMI provided by the network provider is not ANSI Annex-D, configure the appropriate service (LMI Protocol configuration option).
8. Select a Configuration Shortcut Template, whether one or both ports will be used. This feature enables or disables the data ports, and only applicable configuration options will appear for configuration.
9. Edit the FR (frame relay) Discovery setting to prevent DLCIs from being created before you are ready. The default (factory-set) setting is 1MPort (Port 1 only, with multiplexed DLCIs). The access unit starts creating and cross-connecting DLCIs as soon as LMI is detected.
10. Edit the User Interface configuration options, if needed (e.g., External Device if connecting to an external modem or Telnet session).

* Configure the async or VT100-compatible terminal to be compatible with the access unit. Set the data rate to 19.2 kbps, character length to 8 data bits, parity to none, and stop bit to 1.

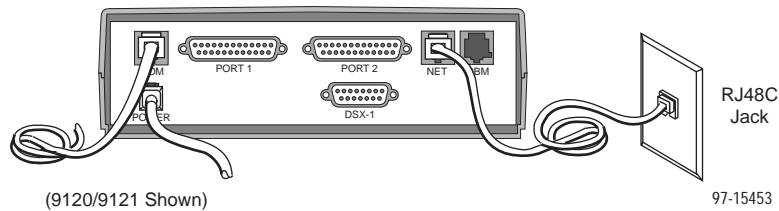
11. Save the edited configuration options.

12. Reconnect the COM port cable based upon how the unit will be accessed.



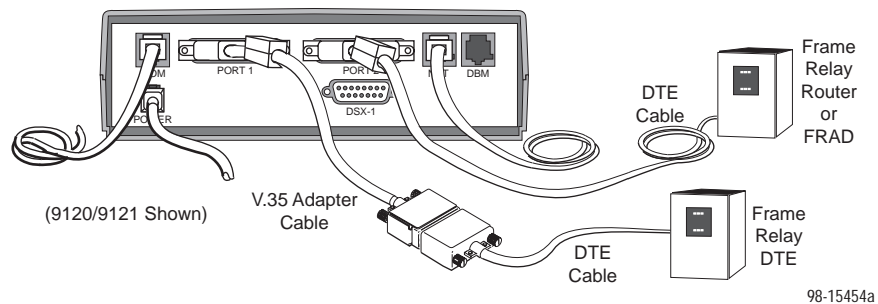
Connecting to the Network

1. Insert the 8-pin connector on the RJ48S (DDS) or RJ48C (T1) network cable into the NET (network) interface.
2. Insert the other end of the cable into the RJ48S (DDS) or RJ48C (T1) modular jack.



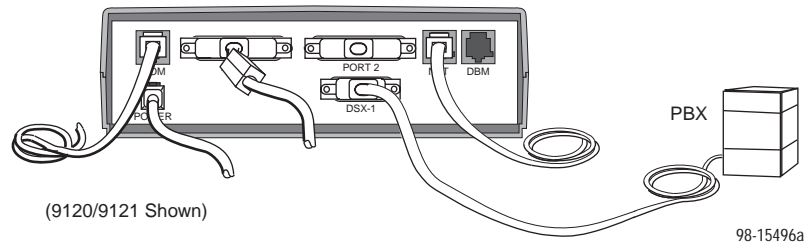
Connecting to a DTE

If the DTE interface type is . . .	Then . . .
EIA-232E EIA-530A	Connect the EIA-232E or EIA-530A end of the DTE cable to Port 1 or Port 2.
V.35 RS449 V.11/X.21	<ol style="list-style-type: none"> 1. Connect the plug to the V.35, RS449, or V.11/X.21 adapter cable. 2. Connect the EIA-232E or EIA-530A end of the adapter cable to Port 1 or Port 2.



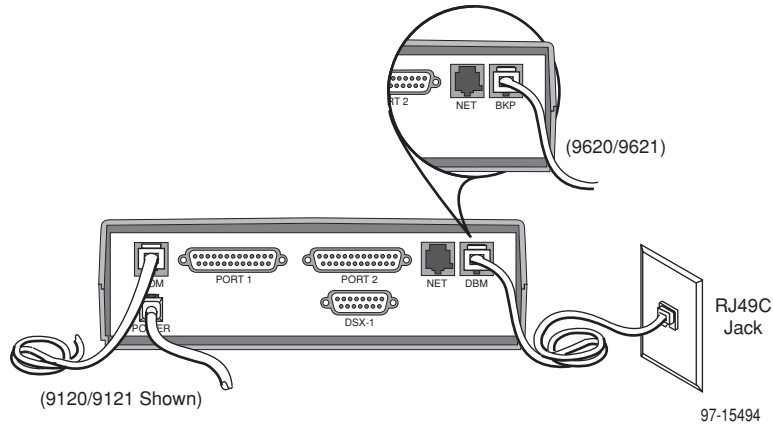
Connecting to the DSX (9120/9121)

1. Connect the DB15 end of the DSX cable to the DSX-1 interface.
2. Connect the other end of the cable to the FCC Part 68 Registered CPE (customer premises equipment, like a PBX).



Installing the ISDN-U Cable (if an ISDN BRI DBM is installed)

1. Insert the 8-pin connector on the ISDN-U cable into the BKP (backup) or DBM interface. (The Model 9620/9621 is labeled BKP, while the Model 9120/91621 is labeled DBM.)



2. Insert the other end of the cable into the ISDN service RJ49C jack.
3. Reconnect the power cord, first to the rear of the access unit, then to the power outlet.

Verification Checklist

- Did the OK LED light? If not, see *Troubleshooting* in the User's Guide.
- Did you configure the async terminal or PC so it is compatible with the access unit's factory-loaded speed (19.2 kbps), character length (8 bits), parity (none), and stop bit (1)? If not, do so now.
- Did the Main Menu appear on the terminal's screen? If not, see Chapter 5, *Troubleshooting and Maintenance* in the Technical Reference.

Verifying connection to a LAN adapter, router, FRAD, or external modem, as well as an internal ISDN BRI DBM, requires setup and configuration. Refer to Chapter 4, *Setting Up*, of the Technical Reference for configuration and ISDN call assistance (Document No. 9621-A2-GH30 or 9121-A2-GH30).

Refer to Chapter 4, *Displaying System Information*, of the User's Guide for status information (Document No. 9621-A2-GB20 or 9121-A2-GB20).

Troubleshooting

Symptom	Possible Cause	Solutions
No power, or none of the system LEDs are lit.	The power cord is not securely plugged into the wall receptacle, or into the rear panel connector.	Check that the power cord is securely attached at both ends.
	The wall receptacle has no power.	<ol style="list-style-type: none"> 1. Check the wall receptacle power by plugging in some equipment that is known to be working. 2. Check the circuit breaker.
	LED is burned out.	Run the Lamp Test. If the LED in question does not flash with the other LEDs, then contact your service representative.
	Power supply is defective.	Contact your sales or service representative.
Power-Up Self-Test fails. Only Alarm LED is on after power-up.	The access unit has detected an internal hardware failure.	<ol style="list-style-type: none"> 1. Reset the access unit and try again. 2. Contact your service representative.
Cannot access the unit or the user interface.	Login or password is incorrect, COM port is misconfigured, or access to the unit is misconfigured.	<ol style="list-style-type: none"> 1. Reset the access unit (see the Technical Reference). 2. Contact your service representative.
Device Fail appears on the System Health and Status screen.	The NAM detects an internal hardware failure.	Record the 8-digit code from the System Health and Status screen, then contact your service representative.
Not receiving data at DTE or DSX-1 interface (9120/9121 only).	Not cross-connected to the correct timeslot(s).	<ol style="list-style-type: none"> 1. Reconnect or repair the cable. 2. Contact your service representative.

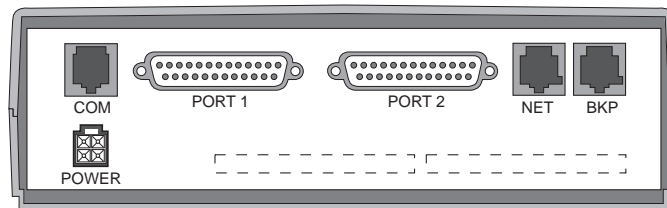
Technical Specifications

Specification	Criteria
Weight	2.59 lbs. (1.18 kg)
Power Consumption and Dissipation 120 VAC power supply: Built-in power cord Power consumption Normal service voltage ranges	NEMA 5-15P plug 120 VAC, 60 Hz, 153 mA Average power 9.5 W 120 VAC \pm 12 VAC, 60 Hz \pm 3
Physical Environment Operating temperature Storage temperature Relative humidity Shock and vibration	35° F to 122° F (1.7° C to 50° C) 9620/9621: 4° F to 158° F (20° C to 70° C) 9120/9121: -4° F to 158° F (-20° C to 70° C) 9620/9621: Up to 90% (noncondensing) 9120/9121: 5% to 85% (noncondensing) Withstands normal shipping and handling
Approvals FCC Part 15 FCC Part 68 Industry Canada UL CSA – Safety	Class A digital device Refer to the equipment's label for the Registration Number. Refer to the equipment's label for the Certification Number. Refer to the equipment's label for the UL listing. Refer to the equipment's label for CSA safety information.
COM Port/Interface – Communications/Management Data rates	8-position modular unkeyed jack 9.6, 14.4, 19.2, 28.8, and 38.4 kbps

Specification	Criteria
Ports 1 and 2 – DTE Synchronous Data Ports Standards Data rates (9620/9621) Data rates (9120/9121)	25-position (DB25) subminiature connectors 9620/9621: EIA-232E, V.24, V.35 9120/9121: EIA-530A, V.35, RS449, V.11, X.21 4.8, 9.6, 14.4, 16.8, 19.2, 24, 28.8, 38.4, 48, 56, 64, 128, 192, and 256 kbps Port-1: 4.8, 9.6, 14.4, 16.8, 19.2, 24, 28.8, 38.4, 48, 56, 64, 128, 192, 256, 320, 384, 448, 512, 576, 640, 704, 768, 832, 896, 960, 1024, 1088, 1152, 1216, 1280, 1344, 1408, 1472, and 1536 kbps. Port-2: 64, 128, 192, 256, 320, 384, 448, 512, 576, 640, 704, 768, 832, 896, 960, 1024, 1088, 1152, 1216, 1280, 1344, 1408, 1472, and 1536 kbps.
DDS Network (NET) Interface (9620/9621 only) Data rates Services supported Physical interface (USA) Physical interface (Canada)	8-position modular keyed USOC jack 56 kbps and 64 kbps clear channel 4-wire service, frame relay service RJ48S CA48S
T1 Network (NET) Interface (9120/9121 only) Data rates Services supported Physical interface (USA) Physical interface (Canada) Framing format Coding format Line Build-Out (LBO) ANSI PRM Bit stuffing Yellow alarm generation	8-position modular unkeyed USOC jack Up to 1.544 Mbps Fractional T1 service, frame relay service RJ48C CA81A using adapter cable D4, ESF AMI, B8ZS 0.0 dB, -7.5 dB, -15 dB, -22.5 dB Selectable FCC Part 68, AT&T TR 62411 Selectable

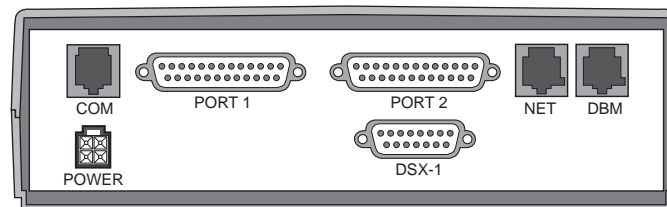
Specification	Criteria
DSX-1 Interface (9120/9121 only) Physical interface Framing format Coding format DTE line equalization Send AIS	15-position (DB15) subminiature connector DB15 socket D4, ESF AMI, B8ZS 5 selectable ranges from 0 to 655 feet (0 – 196.5 meters) Selectable
DBM (BKP) Interface – ISDN BRI DBM Backup Physical interface Service supported	8-position modular keyed jack RJ49C ISDN service

Rear Panels



496-14886

This rear panel is for the 9620/9621 frame relay access unit.



97-15314

This rear panel is for the 9120/9121 T1 frame relay access unit.

Pin Assignments

COM Port/Interface

Signal	Direction	Pin #
DCE Transmit Clock (TXC)	From DCE (Out)	1
DCE Received Data (RXD)	From DCE (Out)	2
Signal Ground (SG)	—	3
DCE Transmit Data (TXD)	To DCE (In)	4
DCE Data Terminal Ready (DTR)	To DCE (In)	5
DCE Carrier Detect (CD)	From DCE (Out)	6
DCE Request to Send (RTS)	To DCE (In)	7
DCE Received Clock (RXC)	From DCE (Out)	8

EIA-232E DTE Ports/Interfaces (9620/9621)

Signal	Circuit Mnemonic	ITU/ CCITT #	Direction	25-Pin EIA-232E Pin #
Shield	—	—	—	1
Transmitted Data (TXD)	BA	103	To DCE	2
Received Data (RXD)	BB	104	From DCE	3
Request to Send (RTS)	CA	105	To DCE	4
Clear to Send (CTS)	CB	106	From DCE	5
Data Set (or DCE) Ready (DSR)	CC	107	From DCE	6
Signal Ground/Common (SG)	AB	102A	—	7
Received Line Signal Detector (RLSD or LSD)	CF	109	From DCE	8
Reserved for future use	—	—	—	9
Not used	—	—	—	10
Reserved for future use	—	—	—	11
Reserved for future use	—	—	—	12

EIA-232E DTE Ports/Interfaces (continued)

Signal	Circuit Mnemonic	ITU/ CCITT #	Direction	25-Pin EIA-232E Pin #
Not used	—	—	—	13
Reserved for future use	—	—	—	14
Transmitter Signal Element Timing (TXC)	DB	114	From DCE	15
Reserved for future use	—	—	—	16
Receiver Signal Element Timing (RXC)	DD	115	From DCE	17
Local Loopback (LL)	LL	141	To DCE	18
Not used	—	—	—	19
Data Terminal (or DTE) Ready (DTR)	CD	108/1, /2	To DCE	20
Not used	—	—	—	21
Ring Indicator (RI)	RI	125	From DCE	22
Not used	—	—	—	23
Transmitter Signal Element Timing (TT)	DA	113	To DCE	24
Test Mode Indicator (TM)	TM	142	From DCE	25

EIA-530A DTE Ports/Interfaces (9120/9121)

Signal	Circuit Mnemonic	ITU/ CCITT #	Direction	25-Pin Pin #
Shield	—	—	—	1
Transmitted Data (TXD)	BA	103	To DCE	2 (A) 14 (B)
Received Data (RXD)	BB	104	From DCE	3 (A) 16 (B)
Request to Send (RTS)	CA	105	To DCE	4 (A) 19 (B)
Clear to Send (CTS)	CB	106	From DCE	5 (A) 13 (B)
Data Set (or DCE) Ready (DSR)	CC	107	From DCE	6
Signal Ground/Common (SG)	AB	102A	—	7
Received Line Signal Detector (RLSD or LSD)	CF	109	From DCE	8 (A) 10 (B)
Transmit Signal Element Timing (TXC – DTE Source)	DA	113	To DCE	11 (B) 24 (A)
Transmitter Signal Element Timing (TXC – DCE Source)	DB	114	From DCE	12 (B) 15 (A)
Receiver Signal Element Timing (RXC – DCE Source)	DD	115	From DCE	17 (A) 9 (B)
Local Loopback (LL)	LL	141	To DCE	18
Data Terminal (or DTE) Ready (DTR)	CD	108/1, /2	To DCE	20
Reserved for future use	—	—	—	21
Signal Common	AC	102B	—	22, 23
Test Mode Indicator (TM)	TM	142	From DCE	25

DSX-1 Port/Interface (9120/9121)

Function	Circuit	Pin #
Receive tip from the DTE	T1	1
Receive ring from the DTE	R1	9
Transmit tip to the DTE	T	3
Transmit ring to the DTE	R	11
Shield	–	2, 4

NET Port/Interface (9620/9621)

Function	Circuit	Pin #
Transmit ring to the network	R	1
Transmit tip to the network	T	2
Receive tip from the network	T1	7
Receive ring from the network	R1	8

NET Port/Interface (9120/9121)

Function	Circuit	Pin #
Transmit ring to the network	R	4
Transmit tip to the network	T	5
Receive tip from the network	T1	2
Receive ring from the network	R1	1

DBM or BKP Port/Interface

Function	Circuit	Pin #
Transmit/Receive ring to/from the local loop	R/R1	4
Transmit/Receive tip to/from the local loop	T/T1	5

Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. All installation must be performed by qualified service personnel, as opening or removing covers may expose dangerous high voltage points or other risks.
3. The power supply for this product is intended to be used with a 3-wire grounding type plug – a plug which has a grounding pin. This is a safety feature. Equipment grounding is vital to ensure safe operation. Do not defeat the purpose of the grounding type plug by modifying the plug or using an adapter.
4. Prior to installation, use an outlet tester or a voltmeter to check the ac receptacle for the presence of earth ground. If the receptacle is not properly grounded, the installation must not continue until a qualified electrician has corrected the problem.
If a 3-wire grounding type power source is not available, consult a qualified electrician to determine another method of grounding the equipment.
5. Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.
6. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
7. General purpose cables are provided with this product. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer.
8. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.
9. A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are **interconnected**, the voltage potential may cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action prior to interconnecting the products.
In addition, if the equipment is to be used with telecommunications circuits, take the following precautions:
10. Never install telephone wiring during a lightning storm.
11. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
12. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
13. Use caution when installing or modifying telephone lines.

-
14. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
 15. Do not use the telephone to report a gas leak in the vicinity of the leak.

EMI Warnings

WARNING:

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 user will be required to correct the interference at his own expense.

The authority to operate this equipment is conditioned by the requirements that no modifications will be made to the equipment unless the changes or modifications are expressly approved by Paradyne.

WARNING:

To Users of Digital Apparatus in Canada:
This Class A digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du règlement sur le matériel brouilleur du Canada.

Government Requirements

Certain governments require that instructions pertaining to connection to the telephone network be included in the user documentation. Specific instructions are listed in the following sections.

United States

Notice to Users of the Telephone Network

This equipment complies with Part 68 of the FCC rules. On the bottom of the unit is a label that contains, among other information, the FCC registration number for this equipment. If the unit comes with an integral modem, the ringer equivalence number (REN) will also be labeled. If requested, please provide this information to your telephone company.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that can be connected to the line, as determined by the total RENs, contact the local telephone company.

If your unit causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If so, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.

No repairs may be performed by the user. Should you experience difficulty with this equipment, refer to the *Warranty, Sales, and Service Information* on page 20.

For Digital Data Service (DDS) installations, inform the local telephone company of the appropriate facility interface code for the service you desire.

DDS Facility Interface Codes

Interface Code	Data Rate (bps)
04DU5-56	56,000
04DU5-64	64,000

The DDS Service Order Number is 6.0Y. The USOC jack required is RJ48S.

Make the T1 network connection using a Universal Service Order Code (USOC) type RJ48C jack for single-line installations and type RJ48H jack for multiline installations. Specify both the Service Order Code 6.0F, as well as the proper Facility Interface Code, to the telephone company when ordering the T1 line. The T1 equipment can be configured to support any of the framing format and line signaling techniques shown in the table below. The T1 equipment's configuration must correspond to the T1 line's parameters.

T1 Facility Interface Codes

Interface Code	Description
04DU9-BN	1.544 Mbps superframe format (SF) without line power
04DU9-DN	1.544 Mbps SF and B8ZS without line power
04DU9-1KN	1.544 Mbps ANSI ESF without line power
04DU-1SN	1.544 Mbps ANSI ESF and B8ZS without line power

Make the ISDN PRI connection using a USOC-type RJ48C jack. When ordering an ISDN line from the telephone company, specify the following:

- Service Order Code 6.0F
- Facility Interface Code 04DU-1SN
- Up to 23B Service for an ISDN PRI DBM – Supports up to 23 circuit-switched B-channels, with one local phone number for the entire T1 network connection.
- Circuit Switched Data capability should be specified.

Make the ISDN connection using a USOC-type RJ49C jack. When ordering an ISDN line from the telephone company, specify the following:

- Facility Interface Code 02IS5
- Calling Number Identification Service (CNIS) for both the originating and answering units for data traffic on the B-channel.
- 1B+D Service – Supports one circuit-switched B-channel with one service profile identification (SPID) number and one local phone number, or
2B+D Service – Supports two circuit-switched B-channels, BRI-B1 and BRI-B2, each with one service profile identification number and one local phone number.
- Capability Package B for 1B-service or Capability Package (I) for 2B Service for an ISDN BRI DBM – Supports up to two circuit-switched B-channels, BRI-B1 and BRI-B2, each with one Service Profile Identification (SPID) number and one local phone number.
- Busy Fixed Call Forwarding for the answering unit (typically the central site unit) is recommended if getting 2B+D service. This feature is only required if all remote units will call the same phone number.
Busy Fixed Call Forwarding forwards a call to the BRI-B2 channel when the BRI-B1 channel is busy, providing greater backup flexibility.

After the telephone company has installed the requested services and jacks, you can connect the DSU with the cable provided. An FCC-compliant telephone cord and modular plug are provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant.

Canada

Notice to Users of the Canadian Telephone Network

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

If your equipment is in need of repair, refer to *Warranty, Sales, and Service Information*.

Warranty, Sales, and Service Information

Contact your local sales representative, service representative, or distributor directly for any help needed. For additional information concerning warranty, sales, service, repair, installation, documentation, training, distributor locations, or Paradyne worldwide office locations, use one of the following methods:

- **Via the Internet:** Visit the Paradyne World Wide Web site at <http://www.paradyne.com>
- **Via Telephone:** Call our automated call system to receive current information via fax or to speak with a company representative.
 - Within the U.S.A., call 1-800-870-2221
 - Outside the U.S.A., call 1-727-530-2340

Document Feedback

We welcome your comments and suggestions about this document. Please mail them to Technical Publications, Paradyne Corporation, 8545 126th Ave. N., Largo, FL 33773, or send e-mail to userdoc@eng.paradyne.com. Include the number and title of this document in your correspondence. Please include your name and phone number if you are willing to provide additional clarification.



9000-A2-GN10-40

Copyright © 1998 Paradyne Corporation