

7123 SNMP DSU/CSU Installation Instructions

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Product Documentation Online

Complete documentation for this product is available at www.paradyne.com.
Select *Library* → *Technical Manuals* → *T1/E1 Digital Access Devices*.

Select the following document:

7123-A2-GB20
7123 SNMP DSU/CSU User's Guide

To order 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

Package Checklist

Verify that your package contains the following:

- 7123 SNMP DSU/CSU
- Power cord with a wall-mount 120 VAC power transformer
- Self-mounting tie wrap for power cord strain relief
- RJ48C modular cable for U.S. network access

Be sure to register your warranty at www.paradyne.com/warranty.

Installation Requirements

Make sure you have:

- A dedicated, grounded power outlet that is protected by a circuit breaker within 6 feet of the 7123 DSU/CSU
- 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 T1 network
- An asynchronous terminal or PC (personal computer)
- If desired, an operable Ethernet LAN (Local Area Network) connection for access by an NMS (Network Management System)
- Configuration information for the DSU/CSU being installed or replaced
- Appropriate cables:
 - Ethernet cable
 - Data port cable
 - COM port-to-terminal or COM port-to-PC cable

See the User's Guide for additional information on:

- Troubleshooting
- Connectors, Cables, and Pin Assignments
- Technical Specifications

Cables You May Need to Order

If connecting to . . .	Order a . . .	Feature Number	Part Number
T1 line interface/ connector <i>For use in Canada.</i>	T1 line interface cable, RJ48C-to-CA81A (20 feet / 6.1 meters)	3100-F1-510	035-0221-2031
Equipment with V.35 interfaces, MS34 connectors	V.35 DTE adapter, EIA-530A-to-V.35	3100-F1-570	035-0244-0031
Asynchronous terminal or PC with an 8-pin modular interface/connector	Standard EIA-232 straight-through cable, 8-pin modular-to-DB25 (14 feet / 4.3 meters)	3100-F2-540	035-0314-1431
PC with a D-Sub9 interface/connector	Standard EIA-232 straight-through cable, D-Sub9-to-DB25 (14 feet / 4.3 meters)	3100-F2-550	035-0313-1431
External device (e.g., a modem)	Standard EIA-232-D crossover cable (14 feet / 4.3 meters)	9008-F1-550	035-0336-1431

Contact your sales representative to order cables.

Differences Between 7112 and 7123 DSU/CSUs

If you have both models in your network, you should be aware that the 7112 DSU/CSU and 7123 DSU/CSU provide the same basic functions, but are based on different hardware platforms. The following table shows the major differences.

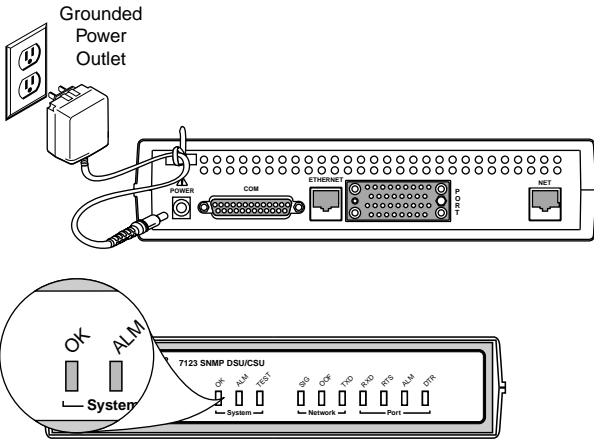
Feature	7112	7123
COM Port Default Data Rate	9.6 Kbps	19.2 Kbps
Data Port LEDs	TXT, RXD, RTS, CTS, DTR	TXD, RXD, RTS, DTR
Data Port Tests	Data Terminal (DTE) Loopback, Data Channel Loopback, Send V.54 and Send FT1 Loopbacks, Pattern Tests	DTE Loopback
DS0 Assignment by Block or ACAMI	Yes	No
FDL (Facility Data Link) for Remote Management	Yes	No
Front Panel Monitor Jacks	Yes	No
FTP Software and Configuration File Transfer	No	Yes
IP Ping	No	Yes
IP Routing Table Display	No	Yes
Management Protocol Statistics	Yes	No
Repeater Loopback Network Test	Yes	No
Software Upgrades	No	Two software versions can be stored and activated

Installing the Power Supply and Cord

Before performing any installation procedures, please refer to the [Important Safety Instructions](#) on page 20.

► Procedure

1. Insert the power cord's plug into the POWER jack.



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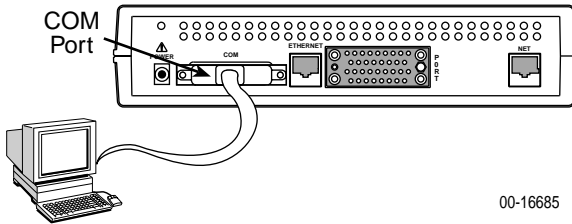
2. Plug the power supply into the grounded power outlet and check the LEDs.
If any LEDs light, you have power. If not, refer to *Troubleshooting* in the User's Guide for possible explanations.
3. Insert the self-mounting tie wrap in the leftmost hole (hole with a dark circle around it) until it snaps securely into place. The tie wrap provides strain relief for the power cord.
4. Loop the tie wrap around the power cord, thread it through the hole at the base of the wrap, and pull it snugly around the cord.

Connecting to an Asynchronous Terminal or PC

A VT100-compatible asynchronous terminal or a PC providing VT100 terminal emulation must be used to set up access to and management of the unit.

► Procedure

1. Configure the terminal or PC so it is compatible with the 7123 DSU/CSU:
 - Baud Rate: 19.2 Kbps
 - Character length: 8 data bits
 - Parity: none
 - Stop bit: 1
 - Flow Control: none
2. Insert the DB25 end of the EIA-232 cable into the 7123 DSU/CSU's COM port.



3. Insert the other end of the cable into the terminal or PC.
4. Tighten the screws on each side of the connector to secure the cable.
5. Press Enter on the keyboard to display the Main Menu.

If the Main Menu does not appear, recheck the terminal or PC settings (see [Step 1](#)), or press the Enter key. Refer to *Troubleshooting* in the User's Guide for other possible explanations.

Verifying that Self-Test Passed

To verify that the unit passed its self-test, go to the System and Test Status screen.

Main Menu → *Status* → *System and Test Status*

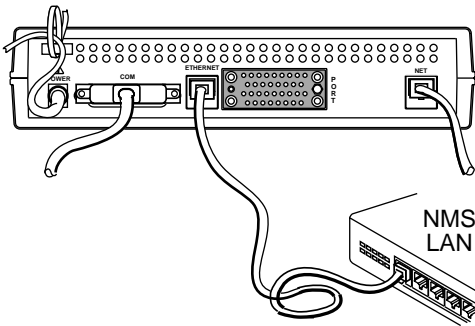
The results of the self-test appear directly under the screen title.

If any failure messages appear, reset the unit by disconnecting, then reconnecting the power cord. The unit will perform the self-test again. If the failure reappears, call your service representative for assistance.

Connecting to the Ethernet LAN

► Procedure

1. Insert one 8-pin connector of the Ethernet cable into the Ethernet port.
2. Insert the other end of the cable into the Ethernet interface of the LAN where the NMS resides.



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3. Check Health and Status messages in the left column of the System and Test Status screen to verify that there are no Ethernet-related Health and Status messages.

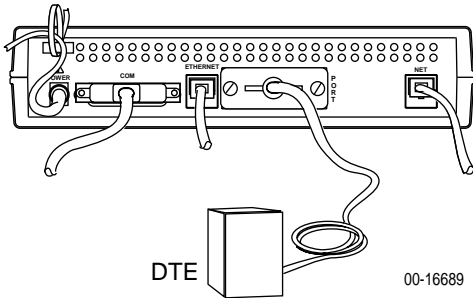
Main Menu → Status → System and Test Status

If the **Ethernet Link Down** message appears, make sure both ends of the Ethernet cable are properly seated.

Connecting to the DTE

► Procedure

1. Connect one end of the DTE's cable to the user data port.
2. Plug the other end of the cable into the DTE.
3. Tighten the screws on each side of the connector to secure the cable.



4. Verify that the Port OK LED is on. If it is, the port is set up correctly and it is operational. If not, make sure both ends of the cable are properly seated and secured.
5. Check Health and Status messages in the left column of the System and Test Status screen for messages.

Main Menu → Status → System and Test Status

- If **system Operational** appears, the port interface is set up correctly and is operational.
- If not, refer to *Status Information in Operation and Maintenance* of the User's Guide.

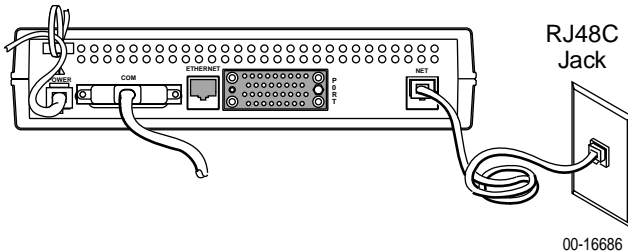
NOTE:

When any error conditions are detected, a status message appears along the bottom right corner of the screen.

Connecting to the Network

► Procedure

1. Insert the 8-pin connector of the RJ48C network cable into the network interface.
2. Insert the other end of the cable into the RJ48C modular jack.

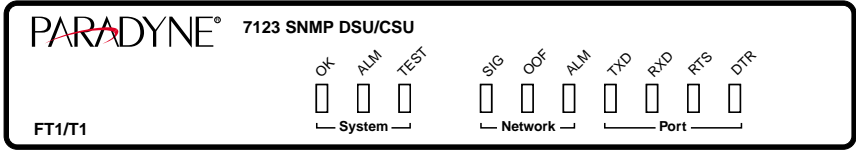


3. Verify that the Network signal (SIG) LED is green. If so, the network interface is set up correctly and is operational. If not, make sure both ends of the network cable are properly seated.
4. Check Health and Status messages in the left column of the System and Test Status screen.

Main Menu → Status → System and Test Status

Front Panel LEDs

The 7123 SNMP DSU/CSU's faceplate includes LEDs (light-emitting diodes) that provide status on the unit and its interfaces. Check the LEDs when you have completed cabling the DSU/CSU.



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See the following table on [page 11](#) for an explanation of front panel LEDs.

Label	Indication	Color	What It Means
System			
OK	Power and Operational Status	Green	ON – DSU/CSU has power and it is operational. OFF – System failed, or self-test in progress.
ALM	Operational Alarm (Fail)	Red	ON – DSU/CSU has just been reset, or an error or fault has been detected.
TEST	Test Mode	Yellow	ON – Loopback or test pattern is in progress. OFF – No tests are active.
Network			
SIG	Signal	Green	ON – A recoverable signal is present on the network interface. OFF – The signal cannot be recovered from the network interface.
OOF	Out of Frame	Yellow	ON – At least one OOF was detected during the sampling period. OFF – No OOFs were detected during the sampling period.
ALM	Alarm	Yellow	ON – An alarm condition is present on the network interface.
Port			
TXD	Transmitted Data	Green	ON – Receiving a 0 from the DTE. OFF – Receiving a 1 from the DTE.
RXD	Received Data	Green	ON – Sending a 0 to the DTE. OFF – Sending a 1 to the DTE.
RTS	Request to Send	Green	ON – DTE is activating a control signal to indicate readiness to transmit data.
DTR	Data Terminal Ready	Green	ON – DTE is activating a control signal to indicate readiness for operation.

A Quick Guide to Configuration

The 7123 DSU/CSU should operate using the default (factory-set) configuration options, with exception to the changes specified in these installation instructions. Refer to the following table for help in navigating through the menus.

Press the . . .	To . . .
Esc key	Go back one screen or menu level. To see a visual representation of the menu levels, see <i>Menu Hierarchy</i> in the User's Guide.
Tab key, or Up (↑), Down (↓), Left (←) and Right (→) Arrow keys	Move the cursor from one menu item to the next.
Enter or Return key	Complete the menu or option selection.
Spacebar	Display the next available setting when changing a configuration option. All the available settings for an option appears at the bottom of the screen.

As an example, follow these steps to go to the Configuration Edit/Display menu so you can start setting up the unit.

To load a configuration for editing:

1. From the Main Menu, press the down arrow key (↓) twice so the cursor is on Configuration.
2. Press Enter to display the Configuration menu. The Load Configuration From menu appears.
3. Press Enter to select Current Configuration (the cursor is already on this selection). The Configuration Edit/Display menu appears.

This sequence of steps would be shown as the following menu selection sequence:

Main Menu → Configuration

To save a configuration option change:

1. Press Ctrl-a to switch to the function keys area at the bottom of the screen.
2. Type **s** or **S** (Save) and press Enter. The Save Configuration To menu appears.
3. Press Enter again to save your changes to the Current Configuration.
4. Press Esc until the Configuration Edit/Display menu reappears to continue configuring the unit.

Press Ctrl-a, type **m** (MainMenu), and press Enter to return to the Main Menu.

In the sections that follow, only the minimum option changes required are included so you will have a quick and trouble-free installation. See the Configuration Option Tables in *Configuration* of the User's Guide for more information about configuration options.

Minimal Configuration

The following procedure is a guide to the configuration options modified during typical installations. To determine whether you need to change particular configuration options from their default values, see [Configuration Options](#) on page 15. For a full description of the options, see the User's Guide.

► Procedure

1. Select the Configuration menu.
Main Menu → Configuration
2. Select the Network menu. Verify that the following are suitable for your network:
 - Line Framing Format (default is ESF)
 - Line Coding Format (default is B8ZS)
 - Line Build-Out (default is 0.0)
3. Press the Escape key to return to the Configuration Edit/Display menu.
4. Select the Management and Communication menu, then select Node IP. Enter the Node IP Address and Subnet Mask.
5. Press the Escape key to return to the Configuration Edit/Display menu.
6. If the Ethernet port will be used, select the Ethernet Port Options Screen, and configure the following:
 - Enable Interface Status. If the NMS will be on a different subnet than the unit, enter **Yes** at the **Would you like to set the Node's Default IP Destination to Ethernet?** prompt. Otherwise, enter **No**.
 - If the IP Address and Subnet Mask are unique to the interface, enter them for the port; otherwise, the Node IP Address and Subnet Mask (found on the Node IP configuration options screen) will be used.
 - Enter the Default Gateway Address; the IP Address that will be used for packets without a route.
7. Press the Escape key twice to return to the Configuration Edit/Display menu.
8. Select the Time Slot Assignment menu, then select Sync Data Port Assignments. Assign the user data port to network interface time slots.
9. Press Ctrl-a, s, and Enter to Save the configuration.

The 7123 DSU/CSU installation is complete.

Configuring SNMP Trap Managers and Traps

Once the 7123 DSU/CSU is connected to the network, SNMP trap managers and SNMP traps can be configured.

► Procedure

To enter SNMP managers and configure traps:

1. Select SNMP Traps.

*Main Menu → Configuration → Management and Communication →
SNMP Traps*

2. Configure the following:

- Enable SNMP Traps.
- Identify the total Number of Trap Managers.
- Specify the IP address of the NMS(s) to which traps will be sent.
- Specify the Initial Route Destination for the Trap Manager(s).
- Select desired trap categories.

3. Save the configuration.

4. Return to the Main Menu.

Configuration Options

General

Select System Options, then General to configure a timeout period and duration for user-initiated loopbacks and pattern tests, and a primary clock source for the system.

General	
Configuration Option	Settings Default in [Bold]
Test Timeout	[Enable] , Disable
Test Duration (min)	1–120 [10]
Primary Clock Source	[Net1] , Internal

Network

Select Network, then Physical to configure physical characteristics for the T1 network interface.

Network	
Configuration Option	Settings Default in [Bold]
Line Framing Format	D4, [ESF]
Line Coding Format	AMI, [B8ZS]
Line Build Out (LBO)	[0.0] , -7.5, -15, -22.5
Bit Stuffing	[62411] , Disable
Network Initiated LLB	[Enable] , Disable
Network Initiated PLB	[Enable] , Disable
ANSI Performance Report Messages	Enable, [Disable]
Excessive Error Rate Threshold	[10E-4] , 10E-5, 10E-6, 10E-7, 10E-8, 10E-9
Circuit Identifier	<i>Text Field</i> , [Clear]

Data Ports

Select Data Ports, then Physical to configure physical characteristics for the user data port, which is connected to a DTE.

Data Ports	
Configuration Option	Settings Default in [Bold]
Port Base Rate (Kbps)	[Nx64] , Nx56
Invert Transmit Clock	[Auto] , Enable, Disable
Transmit Clock Source	[Internal] , External
Monitor RTS (Control)	[Enable] , Disable
Monitor DTR	[Enable] , Disable
Port (DTE) Initiated Loopback	[Disable] , Local
Network Initiated Data Channel Loopback	[Disable] , V.54, ANSI_FT1, V.54_&_ANSI

Time Slot Assignment

Select Sync Data Port Assignments under the Time Slot Assignment configuration branch to assign DS0s on the T1 network interface.

Sync Data Port-to-Network Interface Time Slot Assignment	
Network Channel	Settings Default in [Bold]
N01–N24	[Available] , Port1

Node IP (Management and Communication Options)

Select Node IP to configure support of the IP communication network.

Node IP	
Configuration Option	Settings Default in [Bold]
Node IP Address	001.000.000.000–223.255.255.255, [Clear]
Node Subnet Mask	[000.000.000.000] –255.255.255.255, Clear
Default IP Destination	[None] , COM, Ethernet

General SNMP Management (Management and Communication Options)

Select General SNMP Management to configure the 7123 DSU/CSU so it can be managed as an SNMP agent.

General SNMP Management	
Configuration Option	Settings Default in [Bold]
SNMP Management	[Enable] , Disable
Community Name 1	ASCII text entry, [Public] , Clear
Name 1 Access	Read, [Read/Write]
Community Name 2	ASCII text entry, [Clear]
Name 2 Access	[Read] , Read/Write

Telnet and FTP Sessions (Management and Communication Options)

Select Telnet and FTP Sessions to configure access to the 7123 DSU/CSU through Telnet or FTP, and to determine whether security will be required.

Telnet and FTP Sessions	
Configuration Option	Settings Default in [Bold]
Telnet Session	[Enable] , Disable
Telnet Login Required	Enable, [Disable]
Session Access Level	[Level-1] , Level-2, Level-3
Inactivity Timeout	[Enable] , Disable
Disconnect Time (Minutes)	1–60 [10]
FTP Session	[Enable] , Disable
FTP Login Required	Enable, [Disable]

SNMP NMS Security (Management and Communication Options)

Select SNMP NMS Security to configure access to the unit.

SNMP NMS Security	
Configuration Option	Settings Default in [Bold]
NMS IP Validation	Enable, [Disable]
Number of Managers	[1] –10
NMS <i>n</i> IP Address	001.000.000.000–223.255.255.255, [Clear]
Access Type	[Read] , Read/Write

SNMP Traps (Management and Communication Options)

Select SNMP Traps to configure desired SNMP traps and dialing out when SNMP traps occur.

SNMP Traps	
Configuration Option	Settings Default in [Bold]
SNMP Traps	Enable, [Disable]
Number of Trap Managers	[1] –6
NMS <i>n</i> IP Address	001.000.000.000–223.255.255.255, [Clear]
Initial Route Destination	[AutoRoute] , Ethernet, COM
General Traps	Disable, Warm, AuthFail, [Both]
Enterprise Specific Traps	[Enable] , Disable
Link Traps	Disable, Up, Down, [Both]
Link Traps Interfaces	Network, T1s, Ports, [All]

Ethernet Management (Management and Communication Options)

Select Ethernet Management to configure the unit's Ethernet port.

Ethernet Management	
Configuration Option	Settings Default in [Bold]
Interface Status	Enable, [Disable]
IP Address	001.000.000.000–223.255.255.255, [Clear]
Subnet Mask	[000.000.000.000] – 255.255.255.255, Clear
Default Gateway Address	001.000.000.000–223.255.255.255, [Clear]

Communication Port (Management and Communication Options)

Select Communication Port to configure the unit's COM port.

Communication Port	
Configuration Option	Settings Default in [Bold]
Port Use	[Terminal] , Net Link
When Port Use is set to Terminal:	
Data Rate (Kbps)	9.6, 14.4, [19.2] , 28.8, 38.4, 57.6, 115.2
Character Length	7, [8]
Parity	[None] , Even, Odd
Stop Bits	[1] , 2
Ignore Control Leads	[Disable] , DTR
Login Required	Enable, [Disable]
Port Access Level	[Level-1] , Level-2, Level-3
Inactivity Timeout	[Enable] , Disable
Disconnect Time (Minutes)	1–60 [10]
When Port Use is set to Net Link:	
Data Rate (Kbps)	9.6, 14.4, [19.2] , 28.8, 38.4, 57.6, 115.2
Character Length	7, [8]
Parity	[None] , Even, Odd
Stop Bits	[1] , 2
Ignore Control Leads	[Disable] , DTR
IP Address	001.000.000.000–223.255.255.255, [Clear]
Subnet Mask	[000.000.000.000] –255.255.255.255, Clear
RIP	[None] , Standard_out

External Modem (Management and Communication Options)

Select External Modem (on Com Port) to configure the communications port when it is connected to an external device like an external modem.

External Modem (on Com Port)	
Configuration Option	Settings Default in [Bold]
External Modem Commands	[Disable] , AT
Dial-In Access	[Enable] , Disable

Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. 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.
3. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
4. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.
5. 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.
6. 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.
7. 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.
8. In addition, if the equipment is to be used with telecommunications circuits, take the following precautions:
 - Never install telephone wiring during a lightning storm.
 - Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
 - Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
 - Use caution when installing or modifying telephone lines.
 - Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
 - Do not use the telephone to report a gas leak in the vicinity of the leak.

⚠ UNITED STATES – EMI NOTICE:

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.

⚠ CANADA – EMI NOTICE:

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.

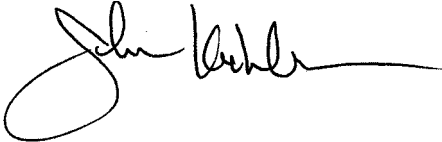
Supplier's Declaration of Conformity

Place of Issue: Paradyne Corporation
8545 126th Avenue North
Largo, FL 33773-1502
USA

Date of Issue: 9/17/2001

Paradyne Corporation, located at the above address, hereby certifies that the Paradyne Model Number 7123-AX-XXX, bearing labeling identification number AW2USA-34999-DD-N complies with: the Federal Communications Commission's ("FCC") Rules and Regulations 47 CFR Part 68 and the Administrative Council on Terminal Attachments ("ACTA")-adopted technical criteria TIA/EIA/IS-968, "Telecommunications - Telephone Terminal Equipment - Technical Requirements for Connection of Terminal Equipment To the Telephone Network, July 2001."

John Koehler
Senior Vice President, DSL Products and Worldwide Services



United States

Notice to Users of the Telephone Network

This equipment complies with Part 68 of the FCC rules. On the bottom of the housing is a label that contains, among other information, the FCC registration number for this equipment. If requested, please provide this information to your 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, Service, and Training Information](#) on page 24.

Make the T1 network connection using a Universal Service Order Code (USOC) type RJ48C jack. 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

After the telephone company has installed the requested service and jack, you can connect the unit 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, Service, and Training Information](#).

Warranty, Sales, Service, and Training 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:

- **Internet:** Visit the Paradyne World Wide Web site at www.paradyne.com. (Be sure to register your warranty at www.paradyne.com/warranty.)
- **Telephone:** Call our automated system to receive current information by fax or to speak with a company representative.
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