ACCULINK® 3150 CSU

QUICK REFERENCE

Document No. 3150-A2-GL11-80

PARADYNE®

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ACCULINK® 3150 CSU
Quick Reference

Document Number 3150-A2-GL11-80

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

Select the following document:

3150-A2-GB24
ACCULINK CSU, Models 3150-A4 and 3151, Operator's Guide

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Quick Start Procedure

Before installing the CSU, see the *Important Safety Instructions* beginning on pageNO TAG.

The following procedure is offered for experienced CSU users who are familiar with the 3150 CSU installation process and have no special requirements for their application. Refer to the *ACCULINK CSU Operator's Guide* for more information.

1. Attach the power cord to the rear of the CSU and the other end to a grounded 115 Vac power outlet.
2. Attach the DTE cable (DB15) and the 8-pin network cable to the DTE and NETWORK connectors, respectively, located on the CSU rear panel. Then, connect the other end of the DTE cable to the CPE. Connect the other end of the network cable to the RJ48C jack provided by the telephone company. See Appendix E, *Pin Assignments*, in the *Operator's Guide* for more information.
3. Power on the CSU to perform the power-on self-test. See *Power-On Self-Test* in Chapter 2, *Installation*, of the *Operator's Guide* for more information.
4. If you intend to use front panel emulation, connect the cable from the PC to the COM port on the rear panel of the CSU.

NOTE:

To configure the CSU remotely, refer to the *Acquiring/Releasing the User Interface* section in Chapter 5, *Security,* in the *Operator's Guide*.

5. If you intend to manage the 3150 CSU with SNMP over an Ethernet LAN, connect the 10BaseT port to your LAN and assign an IP address to the port.
6. Verify that configuration options are appropriate for your network.
7. During the power-on self-test, the **FAIL** LED flashes, then all LEDs blink twice. When the test is complete, verify that the CSU is functional by observing that the **OK, NETWORK SIG**, and **DTE SIG** LEDs are lit.

Configuration Procedures

For detailed configuration procedures see Chapter 4, *Configuration*, and Appendix C, *Configuration Options*, of the *Operator's Guide*.

Displaying/Editing Configuration Options

To display/edit configuration options:

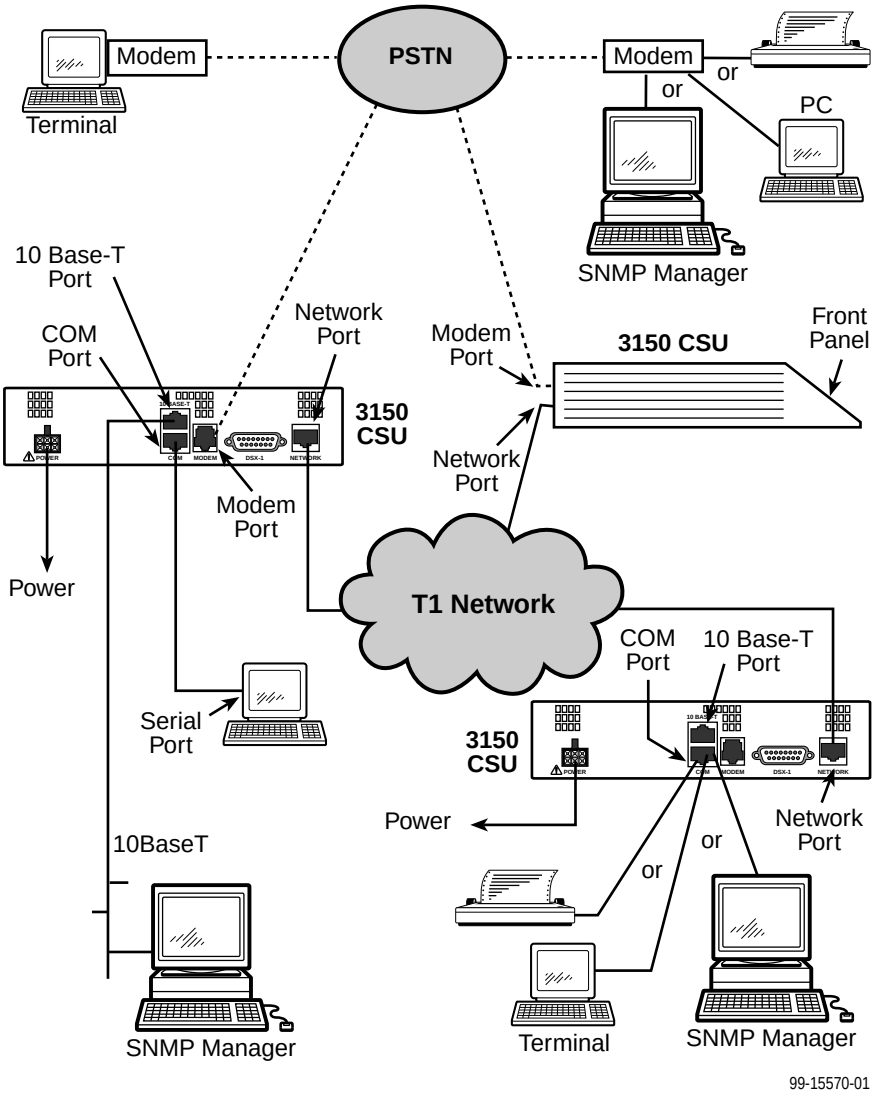
1. From the top-level menu screen (which you can access by pressing the ⏏ key), select Cnfig.
2. Select the configuration option set to be copied into the Edit area by using the appropriate Function key (F1, F2, or F3). Use the scroll keys (◅ and ▻), if necessary.

   The Factory 1 configuration for ESF framing format and B8ZS line coding format is the default configuration and is appropriate for most networks. For D4 framing format and AMI line coding format, use the Factory 2 configuration. See Table 2.
3. Select Edit.
4. From the Edit screen, select the functional group you want to edit by pressing the appropriate Function key. Use the scroll keys (◅ and ▻), if necessary.

Saving Edit Changes

To save edit changes:

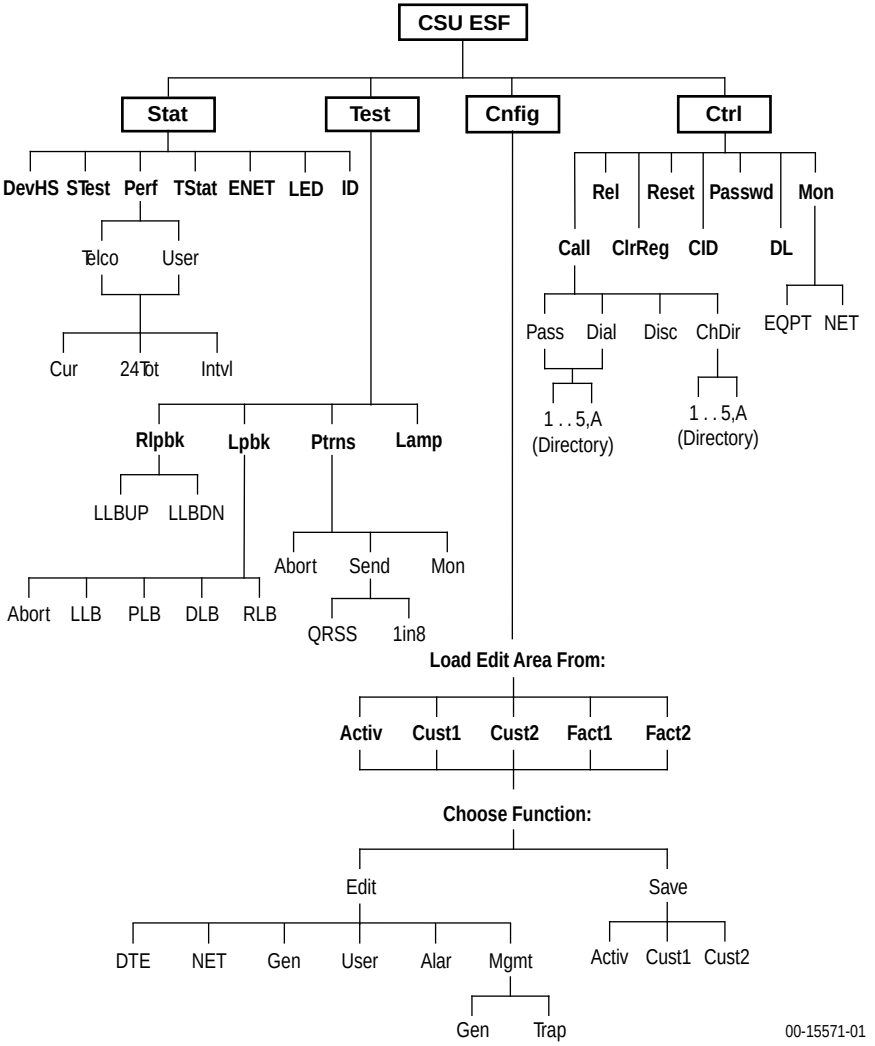
1. From the Choose Funct screen (one level above the Edit screen, two levels below the top-level menu screen), select Save.
2. Choose whether you want to save to the Active, Customer 1, or Customer 2 area. Use the scroll keys (◅ and ▻), if necessary.



Cabling Examples

Configuration Options

Configuration options are accessed from the Cnfig branch of the front panel menu.



Factory default configuration options are shown in **boldface** type in the following tables.

Table 1. DTE Interface Configuration Options

Option	Factory 1	Factory 2	Comments/Description
DTE Framing:	D4	**D4**	Selects D4 or ESF framing format.
	ESF	ESF	
DTE Coding:	AMI	**AMI**	Selects AMI or B8ZS line coding format.
	B8ZS	B8ZS	
Equal: (DTE Line Equalizer)	**0–133**	**0–133**	Selectable extended DTE range capability.
	133–266	133–266	
	266–399	266–399	
	399–533	399–533	
	533–655	533–655	
Extrn DLB: (External DTE Loopback)	Enab	Enab	Allows control of DLB on external contact closure.
	Disab	**Disab**	
Send AIS:	**Enab**	**Enab**	Sends AIS to the DTE on failure of the Network interface signal.
	Disab	Disab	
Yellow:	**Enab**	**Enab**	Transcodes and sends Yellow signal to the DTE on receiving Yellow from the Network.
	Disab	Disab	

Table 2. Network Interface Configuration Options (1 of 2)

Option	Factory 1	Factory 2	Comments/Description
NET Framing:	D4	**D4**	Selects D4 or ESF framing format.
	ESF	ESF	
NET Coding:	AMI	**AMI**	Selects AMI or B8ZS line coding format.
	B8ZS	B8ZS	
LBO:	**0.0**	**0.0**	Line Build Out in dB.
	–7.5	–7.5	
	–15.0	–15.0	
	–22.5	–22.5	
ANSI PRM:	Enab	N/A	Sends ANSI Performance Report Messages.
	Disab		
Mgmt Link:	Enab	Enab	Specifies whether the FDL's Management Link is enabled.
	Disab	**Disab**	

Table 2. Network Interface Configuration Options (2 of 2)

Option	Factory 1	Factory 2	Comments/Description
NET LLB:	**Enab**	**Enab**	Network-initiated LLB allows LLB to be controlled by inband LLB codes.
	Disab	Disab	
NET PLB:	**Enab**	N/A	Network-initiated PLB allows PLB to be controlled by FDL PLB messages.
	Disab		
BitStuff:	N/A	**62411**	Available if NET Coding is AMI, enforces ONEs density protection.
		Disab	
KeepAlive:	**AIS**	**AIS**	Specifies the keep alive signal to send to the network interface on a failure of the DTE signal.
	One (Framed All Ones)	One (Framed All Ones)	
	NetLp (Loopback of network signal)	NetLp (Loopback of network signal)	
Yellow:	**Enab**	**Enab**	Transcodes and sends Yellow signal to the network on receiving Yellow from DTE.
	Disab	Disab	
Circuit Ident:	Edit	Edit	Specifies the transmission vendor's circuit identifier.
	Clear	**Clear**	
CRC PThru (Passthrough):	Enab	Enab	Determines whether framing bits are passed to the DTE.
	Disab	**Disab**	

Table 3. General Configuration Options

Option	Factory 1	Factory 2	Comments/Description
Tst Timeout:	**Enab**	**Enab**	Specifies whether user-initiated tests are limited by the Tst Duration configuration option.
	Disab	Disab	
Tst Duration:	**10**	**10**	Specifies in minutes the duration of user-initiated tests.
	Up	Up	
	Down	Down	
	Save	Save	

Table 4. User Interface Configuration Options (1 of 3)

Option	Factory 1	Factory 2	Comments/Description
Self-Test:	**Enab**	**Enab**	Allows bypass of self-test on initialization.
	Disab	Disab	
FP Access:	**Enab**	**Enab**	Controls whether front panel access or display is allowed.
	Disab	Disab	
FP Pass:	Enab	Enab	Controls whether dial-out access to a remote CSU using the front panel pass-through operation is allowed.
	Disab	**Disab**	
Dial-In:	**Enab**	**Enab**	Controls whether dial-in access is allowed.
	Disab	Disab	
Password:	**None**	**None**	Activates a password prompt that prevents access until a password is entered.
	Com	Com	
	Modem	Modem	
	Both	Both	
Com Use:	Mgmt	Mgmt	Controls how the COM port is used.
	ASCII	**ASCII**	
	Daisy	Daisy	
	Term	Term	
Com Type:	**Async**	**Async**	Specifies whether the COM port uses synchronous or asynchronous operation.
	Sync	Sync	
Com Clk:	**Int**	**Int**	Controls whether the COM port uses internal or external clocking for synchronous operation.
	Ext	Ext	
Com Rate: (Communication Port Rate)	1.2	1.2	Selects the bit rate for the COM port.
	2.4	2.4	
	4.8	4.8	
	9.6	**9.6**	
	14.4	14.4	
	19.2	19.2	
	38.4	38.4	
Char Length:	7	7	Selects the character length for the COM port.
	8	**8**	
CParity: (Communication Port Parity)	**None**	**None**	Selects the parity for the COM port.
	Even	Even	
	Odd	Odd	

Table 4. User Interface Configuration Options (2 of 3)

Option	Factory 1	Factory 2	Comments/Description
CStop Bits: (Communication Port Stop Bits)	**1**	**1**	Selects the number of stop bits for the COM port.
	1.5	1.5	
	2	2	
Ignore DTR:	Yes	Yes	Specifies whether the COM port ignores DTR.
	No	**No**	
CmInActTm: (COM Port Inactivity Timeout)	Enab	Enab	Specifies whether the communication port disconnects after a certain period of inactivity.
	Disab	**Disab**	
CmDiscTm: (COM Port Disconnect Time)	**5**	**5**	Specifies the period of inactivity (1 to 60 minutes) that causes a disconnect if CmInActTm is enabled.
	Up	Up	
	Down	Down	
	Save	Save	
Modem Use:	Mgmt	Mgmt	Specifies how the modem port is used.
	ASCII	**ASCII**	
	Term	Term	
Modem Type:	**Async**	**Async**	Specifies whether the port uses synchronous or asynchronous operation.
	Sync	Sync	
Modem Rate:	1.2	1.2	Specifies the bit rate for the modem port (in kbps).
	2.4	**2.4**	
MChar Len:	7	7	Specifies the character length (in bits) for the modem port.
	8	**8**	
MParity:	**None**	**None**	Specifies the parity for the modem port.
	Even	Even	
	Odd	Odd	
MStop Bits:	**1**	**1**	Specifies the number of stop bits for the modem port.
	2	2	
LSpaceDsc:	Enab	Enab	Controls whether the modem sends a long space before it disconnects.
	Disab	**Disab**	
MoInActTm:	Enab	Enab	Specifies whether the modem port disconnects after the period of inactivity specified by MoDiscTm.
	Disab	**Disab**	

Table 4. User Interface Configuration Options (3 of 3)

Option	Factory 1	Factory 2	Comments/Description
MoDiscTm:	**5**	**5**	Specifies the period of of inactivity that will cause a disconnect if MoInActTm is enabled.
	Up	Up	
	Down	Down	
ENET Use:	**Ver2**	**Ver2**	Specifies the protocol used on the 10BaseT port.
	802.3	802.3	
	Disab	Disab	
ENET IP Adr:	Edit	Edit	Specifies the IP address of the 10BaseT port.
	Clear	**Clear**	
ENET NetMask:	Edit	Edit	Specifies the subnet mask for the 10BaseT port's IP address.
	Clear	**Clear**	
DefGatewayAdr:	Edit	Edit	Specifies the IP address where messages for other subnets are sent.
	Clear	**Clear**	
TnSession: (Telnet Session)	Enab	Enab	Specifies whether the DSU/CSU responds to Telnet session requests.
	Disab	**Disab**	
TnPaswd: (Telnet Password)	Enab	Enab	Specifies whether a password is required for Telnet sessions.
	Disab	**Disab**	
TnInActTm: (Telnet Inactivity Timeout)	Enab	Enab	Specifies whether a Telnet session disconnects after a certain period of inactivity.
	Disab	**Disab**	
TnDiscTm: (Telnet Disconnect Time)	**5**	**5**	The period of inactivity (1 to 60 minutes) that causes a disconnect if TnInActTm is enabled.
	Up	Up	
	Down	Down	
	Save	Save	

Table 5. Alarm Configuration Options

Option	Factory 1	Factory 2	Comments/Description
Alrm Msg:	**Disab**	**Disab**	Does not display alarm messages.
	Modem	Modem	Sends alarm messages to MODEM port.
	Com	Com	Sends alarm messages to COM port.
	Both	Both	Sends alarm messages to both the COM port and the MODEM port.
SNMP Trap:	Enab	Enab	Sends SNMP traps.
	Disab	**Disab**	
TrapDisc:	**Enab**	**Enab**	Specifies whether the modem connection will disconnect after a trap is sent.
	Disab	Disab	
DialOut:	Enab	Enab	Provides the option to allow automatic dial-out to send alarm messages on MODEM port.
	Disab	**Disab**	
Call Retry:	Enab	Enab	Specifies whether an outgoing call is retried on a busy or failed call attempt.
	Disab	**Disab**	
Dial Delay:	1–4 **5** 6–10	1–4 **5** 6–10	The time (in minutes) to delay between successive alarm dial-outs or retry attempts.
AltDialDir:	**None** 1–5	**None** 1–5	The alternate dial-out directory to use if a call to the primary number cannot be completed.
Err Rate: (Excessive Error Rate)	**10E–4**	**10E–4**	The error rate threshold for Excessive Error Rate Alarm.
	10E-5–10E-9	10E-5–10E-9	

Table 6. General Management Configuration Options (1 of 2)

Option	Factory 1	Factory 2	Comments/Description
SNMP Mgt:	Enab	Enab	Specifies whether the DSU/CSU responds to SNMP session requests.
	Disab	**Disab**	
NMS Valid:	Enab	Enab	Specifies whether the DSU/CSU validates the IP address of an SNMP manager attempting access.
	Disab	**Disab**	
Num Sec Mgrs:	**1**	**1**	The number of SNMP managers allowed to access the DSU/CSU.
	2–10	2–10	
NMS *n* IP Adr:	Edit	Edit	Allows you to define or clear the allowable IP address of an SNMP manager.
	Clear	**Clear**	
NMS *n* Access:	**Read**	**Read**	The type of access allowed for an SNMP manager using community name 1.
	R/W	R/W	
System Name:	Edit	Edit	The SNMP system name for this device.
	Clear	**Clear**	
System Location:	Edit	Edit	The SNMP system location for this device.
	Clear	**Clear**	
System Contact:	Edit	Edit	The SNMP system contact name for this device.
	Clear	**Clear**	
CommunityName1:	Edit	Edit	A community name that is allowed access to this device. Defaults to *public*.
	Clear	**Clear**	
Access 1:	**Read**	**Read**	The type of access allowed for community name 1.
	R/W	R/W	
CommunityName2:	Edit	Edit	A community name that is allowed access to this device.
	Clear	**Clear**	
Access 2:	**Read**	**Read**	The type of access allowed for community name 2.
	R/W	R/W	
IP Adr:	Edit	Edit	The IP address needed to access the device.
	Clear	**Clear**	
NetMask:	Edit	Edit	The Subnet Mask needed to access the device.
	Clear	**Clear**	
Com IP Adr:	Edit	Edit	The IP address for the COM port when configured for SNMP.
	Clear	**Clear**	

Table 6. General Management Configuration Options (2 of 2)

Option	Factory 1	Factory 2	Comments/Description
Com NetMask:	Edit	Edit	The Subnet Mask needed to access the device when the COM port is configured for SNMP.
	Clear	**Clear**	
Com Link:	**PPP**	**PPP**	The link layer protocol for the COM port when configured for SNMP.
	SLIP	SLIP	
Modem IP Adr:	Edit	Edit	Specifies the IP address for the modem port if Modem Use is set to Mgmt.
	Clear	**Clear**	
Mdm NetMask:	Edit	Edit	Specifies the subnet mask for the modem port if Modem Use is set to Mgmt.
	Clear	**Clear**	
Alt Mdm IP Adr:	Edit	Edit	Specifies the alternate IP address for the modem port if Modem Use is set to Mgmt.
	Clear	**Clear**	
Alt Mdm NetMask:	Edit	Edit	Specifies the alternate subnet mask for the modem port if Modem Use is set to Mgmt.
	Clear	**Clear**	
Modem Link:	**PPP**	**PPP**	Specifies the link layer protocol for the modem port if Modem Use is set to Mgmt.
	SLIP	SLIP	
Def Netwk:	**None**	**None**	The default network connection.
	Com	Com	
	Modem	Modem	
	FDL	FDL	

Table 7. Management Trap Configuration Options

Option	Factory 1	Factory 2	Comments/Description
Num Trap Mgrs:	**1** 2–6	**1** 2–6	The number of trap managers supported by the device.
Trap*n* IP Adr:	Edit	Edit	Specifies the IP address for each trap manager. This configuration option is repeated for all *n* managers.
	Clear	**Clear**	
Trap*n* Dst:	**None**	**None**	Specifies the network destination for Trap Manager *n*.
	Com	Com	
	FDL	FDL	
	EDL*n*	EDL*n*	
Gen Trap:	Disab	Disab	Specifies the general trap types to enable: WarmStart, Authentication Failure or both.
	Warm	Warm	
	Auth	Auth	
	Both	**Both**	
Entp Trap:	**Enab**	**Enab**	Specifies whether the EnterpriseSpecific trap type is enabled.
	Disab	Disab	
Link Trap:	Disab	Disab	Specifies the link trap type to enable: Trap on Link Up, Link Down, or both.
	Up	Up	
	Down	Down	
	Both	**Both**	
Trap I/F:	NET	NET	When any link trap types are enabled, specifies which links to send traps for.
	DTE	DTE	
	Both	**Both**	

⚠ Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. This product is intended to be used with a three-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 adaptor.

   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 three-wire grounding type power source is not available, consult a qualified electrician to determine another method of grounding the equipment.
3. 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.
4. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
5. 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.
6. 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.
7. 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.
8. 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.
9. The Model 3150's input power to the AC voltage configuration of this product must be provided by a UL Listed or CSA Certified, Class 2 transformer. Input power to the DC voltage configurations of this product must be provided by a National Electric Code (NEC) or a Canadian Electric Code (CEC), Part 1, Class 2 circuit.
10. This product contains a coin cell lithium battery that is only to be replaced at the factory. **Caution:** There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same type. Dispose of used batteries according to the battery manufacturer's instructions. **Attention:** Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

11. 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 Corporation.

⚠ 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 matérial brouilleur du Canada.

Government Requirements and Equipment Return

Certain governments require that instructions pertaining to CSU connection to the telephone network be included in the installation and operation manual. Specific instructions are listed in the following sections.

Notice to Users of the United States Telephone Network

1. This equipment complies with Part 68 of the FCC rules. On the equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. The label is located on the bottom of the 3150 CSU. If requested, this information must be provided to the telephone company.
2. There are two types of telephone lines associated with the standalone equipment. The T1 network connection should be made using a Universal Service Order Code (USOC) type RJ48C jack. The Service Order Code 6.0F should be specified to the telephone company when ordering the T1 line. In addition, the proper Facility Interface Code must be specified to the Telephone Company. The CSU can be configured to support any of the following framing format and line signaling techniques. The CSU's configuration must correspond to the T1 line's parameters. The 3150 CSU's internal modem connects to the Public Switched Telephone Network using a USOC Type RJ11C jack. The Facility Interface Code 02LS2 along with the RJ11C jack should be specified to the telephone company when ordering a dial line for the modem.

3150 CSU Facility Interface Codes

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

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

4. If the DSU/CSU causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

5. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

6. If you experience trouble with this equipment, please contact your sales or service representative (as appropriate) for repair or warranty information. If the product needs to be returned to the company service center for repair, contact them directly for return instructions using 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 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

   If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

7. The equipment's modem cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

8. FCC compliant telephone line cords with modular plugs are provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

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* in the front of this document.

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