



# SNE2000-P, SNE2000-S, SNE2000Q-P and SNE2000Q-S Network Extenders

## Installation Instructions

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## Package Contents

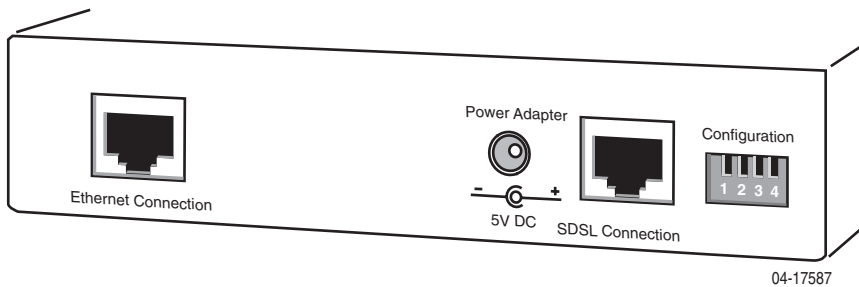
Unpack and Inspect the Equipment. The following components should be included:

- 1 SNE2000
- 1 Power supply

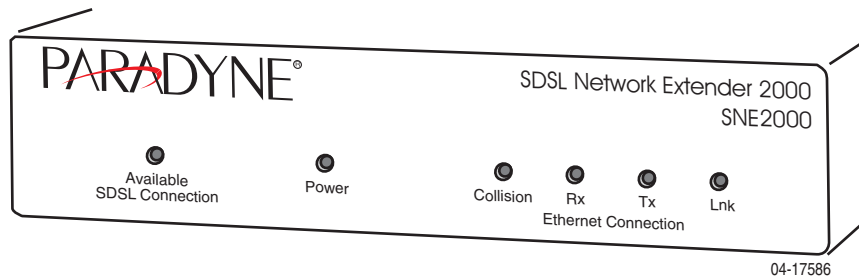
If there is any visible damage, do not attempt to connect the device. Contact your sales or service provider.

## Connecting to Power

Plug the power supply into the Power Adapter port on the back of the SNE2000 and connect it to your power source.



Verify that the Power LED on the front of the SNE2000 is illuminated.



Upon startup, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet Rx, Tx, and Lnk LEDs) until the SDSL connection has been established.

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# Configuring the SNE2000

Configuration switches for the SDSL port are on the back of the SNE2000, numbered from left to right, 1-4.

## Bandwidth

Switches 1–3 configure bandwidth on the SNE2000-P and SNE2000Q-P. Switches 1–3 on the SNE2000-P and SNE2000Q-P provide eight bandwidth options for the SDSL port. Distance capabilities listed in the following tables assume the use of 26 American Wire Gauge (AWG) cable. Connections made with cable of a heavier gauge will link up at greater distances. Your SNE2000 may not link up if the cable is in poor condition or if the cable distance is greater than a particular bandwidth will support; if a link is achieved under such conditions, traffic quality may be affected.

**Table 1. SNE2000-P Bandwidth and Distance Options**

Switch Position			Bandwidth (kbps)	Distance	
1	2	3		Feet	Meters
down	down	down	2,320	11,000	3,353
down	down	up	2,064	11,900	3,627
down	up	down	1,552	12,600	3,840
down	up	up	1,040	15,500	4,724
up	down	down	784	16,000	4,877
up	down	up	528	17,900	5,456
up	up	down	400	18,900	5,761
up	up	up	Adaptive*	Varies	Varies

\* Adaptive mode allows the SNE2000-P to train up to the best possible speed supported by the SNE2000-P, the remote modem to which it is connected, and the copper cable pair connecting the two. The maximum distance for an SNE2000-P in Adaptive mode is 24,700 feet (at 144 kbps). The SNE2000Q-P does not have Adaptive capability.

**Table 2. SNE2000Q-P Bandwidth and Distance Options**

Switch Position			Bandwidth (kbps)	Distance	
1	2	3		Feet	Meters
down	down	down	2,320	10,400	3,170
down	down	up	2,064	10,800	3,292
down	up	down	1,552	13,400	4,084
down	up	up	1,040	14,800	4,511
up	down	down	784	15,800	4,816
up	down	up	528	17,400	5,304
up	up	down	400	18,200	5,547
up	up	up	272	19,200	5,852

NOTE: Bandwidth cannot be configured on the SNE2000-S or SNE2000Q-S. Subscriber units determine bandwidth via communication with their partner SDSL provider units.

### Ethernet Duplex Mode

Switch 4 configures Duplex Mode on the SNE2000-P, SNE2000-S, SNE2000Q-P and SNE2000Q-S.

The Ethernet link can be configured at either Full Duplex or Half Duplex mode. Although both ends of the Ethernet connection must have the same duplex mode configuration, it is not necessary for partner providers and subscribers to be configured the same; duplex mode does not apply to the SDSL link.

- Half Duplex Ethernet – Receive and transmit functions are mutually exclusive. Data transmission occurs in only one direction at a time. Packet collisions are not unusual.
- Full Duplex Ethernet – The Ethernet line can receive and transmit simultaneously, effectively upping aggregate bandwidth from 10 Mbps to 20 Mbps and preventing packet collisions.

**Table 3. Duplex Settings Using Switch 4**

Position	Setting
down	Half Duplex
up	Full Duplex

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## Connecting the SDSL Line

An SNE2000-S must be connected via an SDSL line to an SNE2000-P, a Mini DSLAM, a Micro DSLAM or an IP DSLAM interface module. Likewise, an SNE2000Q-S must be connected via SDSL line to an SNE2000Q-P, Mini DSLAM, Micro DSLAM or IP DSLAM interface module. Neither a subscriber-to-subscriber nor a provider-to-provider connection will function.

### ► Procedure

1. Plug your SDSL cable into the SDSL RJ45 port on the back of the SNE2000.
2. Verify the connection: the SDSL Connection LED on the front of the SNE2000 will pulse green to indicate the connection is established and operational.

Link up time between local and remote SDSL network extenders can vary from one to five minutes depending on the quality, gauge and distance of the copper cable. If cable distance is greater than a particular bandwidth will support, the units may not link up or, if they do achieve a link, traffic quality may be affected.

## Connecting the Ethernet Line

### ► Procedure

1. Plug the Ethernet cable into the Ethernet Connection RJ45 port on the back of the SNE2000.
2. Verify the connection: solid illumination of the Ethernet Connection Lnk LED on the front of the SNE2000 indicates a link has been established, if an SDSL connection has already been made. If an SDSL connection has not yet been made, the Ethernet link will remain disabled (as indicated by solid illumination of the Ethernet Rx, Tx and Lnk LEDs) until the SDSL link has been established.

NOTE: For most applications, the SNE2000 connects to a PC using a straight-through Ethernet cable and to a hub or a switch using a crossover Ethernet cable.

# LED Indicators

**Table 4. LEDs (1 of 2)**

LED	STATE	INDICATION	ADDITIONAL INFORMATION
Power	Solid Green	SNE2000 is operational	If the Power LED is not illuminated, it is unlikely the SNE2000 is receiving power, in which case none of the LEDs will be illuminated:
Available SDSL Connection	Pulsing Green*	SDSL connection is established and active	Traffic is flowing.
	Solid Green	Problematic SDSL connection	A connection exists but there is indication of a problem with the SDSL line.
	No Illumination	No SDSL connection	
Ethernet Collision	No Illumination	Standard	Either there is no traffic or traffic is flowing without any collisions. If there is no Ethernet connection, the Ethernet Collision LED will remain unlit by default.  An SNE2000 in Full Duplex mode does not have collisions; the Ethernet Collision LED is only applicable in Half Duplex mode.
	Flashing Red	Packet collision(s)	The Ethernet packet(s) will automatically be retransmitted.
	Solid Red	Warning	There is a potential traffic problem over the Ethernet segment.
Ethernet Rx	Flashing Amber	Ethernet activity	The SNE2000 is receiving data from the Ethernet network.
	Solid Amber	Heavy Rx traffic	The SNE2000 is receiving large amounts of data from the Ethernet network. A solid amber Ethernet Rx LED can also signify a lost SDSL connection.
	No Illumination	No activity	Either there is no Ethernet link or a link exists but there is no activity.

**Table 4. LEDs (2 of 2)**

<b>LED</b>	<b>STATE</b>	<b>INDICATION</b>	<b>ADDITIONAL INFORMATION</b>
Ethernet Tx	Flashing Amber	Ethernet activity	The SNE2000 is transmitting data across the Ethernet network.
	Solid Amber	Heavy Tx traffic	The SNE2000 is transmitting large amounts of data across the Ethernet network. A solid amber Ethernet Tx LED can also signify a lost SDSL connection.
Ethernet Lnk	Solid Green	Ethernet connection is established	A solid green Ethernet Lnk LED can also signify a lost SDSL connection.
	No Illumination	No Ethernet connection	The Ethernet Rx and Tx LEDs will remain unlit by default.

\* A pulsing LED blinks steadily at a rate of once per second. A flashing LED blinks at a more rapid, less constant rate.

NOTE: If the SDSL connection loses link, the Ethernet connection will automatically be disabled (as indicated by solid illumination of the Ethernet Rx, Tx and Lnk LEDs). Upon reestablishment of at the SDSL link, the Ethernet connection will be reinstated and the Ethernet LEDs will reflect current Ethernet status.

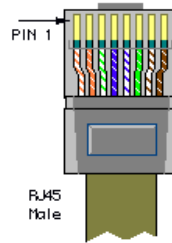


# RJ45 Pin Assignments

## SDSL RJ45 Pin Assignments

Table 5. SDSL RJ45 Pin Assignments

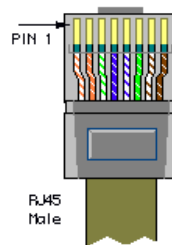
Pin	Function
1	not used
2	not used
3	not used
4	Ring
5	Tip
6	not used
7	not used
8	not used



## Ethernet RJ45 Pin Assignments

Table 6. Ethernet RJ45 Pin Assignments

Pin	Function
Pin 1	Rx+
Pin 2	Rx-
Pin 3	Tx+
Pin 4	not used
Pin 5	not used
Pin 6	Tx-
Pin 7	not used
Pin 8	not used



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## EMI Notices

### **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.

If the equipment includes a ferrite choke or chokes, they must be installed per the installation instructions.

### **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.

## 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 hazardous voltage or to other risks. Refer all servicing to qualified service personnel.
5. General purpose cables are used with this product for connection to the network. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer. Use a UL Listed, CSA certified, minimum No. 26 AWG line cord for connection to the Digital Subscriber Line (DSL) network.

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6. When installed, 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. Input power to this product must be provided by one of the following: (1) a UL Listed/CSA certified power source with a Class 2 or Limited Power Source (LPS) output for use in North America, or (2) a certified power source, with a Safety Extra Low Voltage (SELV) output having a maximum of 240 VA available, for use in the country of installation.
  9. In addition, since 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.

## Product Documentation Online

Complete documentation for Paradyne products is available at [www.paradyne.com](http://www.paradyne.com).  
Select *Support* → *Technical Manuals*.

To order a paper copy of a Paradyne document, or to speak with a sales representative, please call 1-727-530-2000.



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