P-871M

VDSL Modem

User's Guide

Version ME1
5/2008
Edition 1

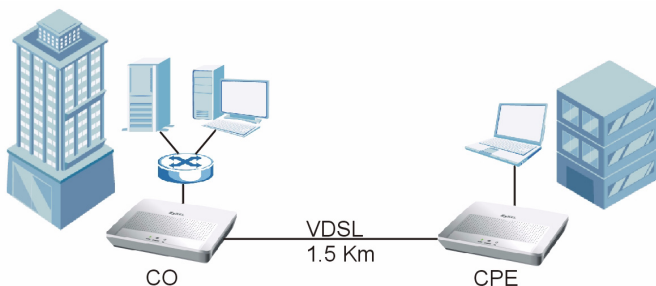| DEFAULT LOGIN	
Password	1234
Console Port Speed	38400 bps

ZyXEL

Overview

The P-871M is a VDSL modem in CPE (Customer Premises Equipment) mode and can also act as CO (Central Office) equipment. CO equipment is where home and office phone lines terminate and connects to a much larger switching system. In the following example, you can build up a VDSL bridge connection between two P-871Ms.
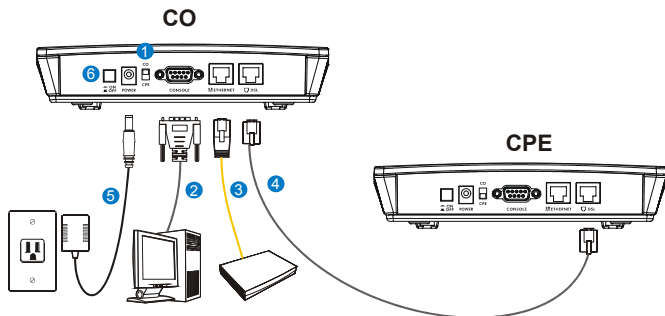

This guide covers:

1 Hardware Connections

You can set the P-871M to work in either CO mode or CPE mode. Follow the procedure below to complete the hardware connections.

1.1 CO Mode

1 Set the **CO/CPE** switch on the rear panel to the **CO** side.

2 Use the included console cable to connect the **CONSOLE** port to your computer's **COM** port for configuration.

3 Use the included yellow Ethernet cable to connect the **ETHERNET** port to your network device, such as a switch.

4 Over ISDN: Use the included gray cable with a RJ-45 connector to connect the **DSL** port to another P-871M in CPE mode.

Over POTS: Use the included gray cable with a RJ-11 connector to connect the **DSL** port to another P-871M in CPE mode.

5 Use the included power adaptor to connect the **POWER** socket to a proper power source.

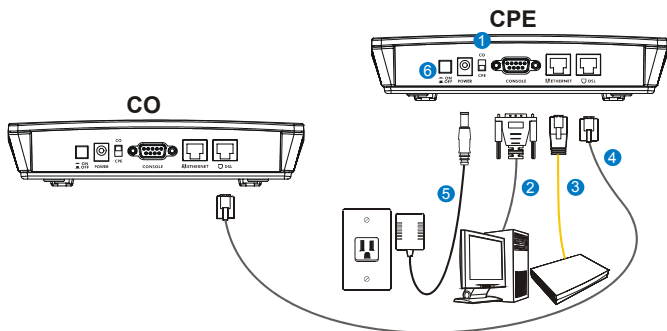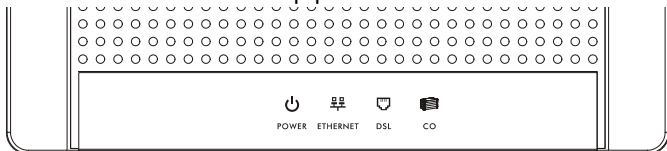**6** Push the power switch to the on position.

1.2 CPE Mode

1 Set the **CO/CPE** switch on the rear panel to the **CPE** side.

2 Use the included console cable to connect the **CONSOLE** port to your computer's **COM** port for configuration.

3 Use the included yellow Ethernet cable to connect the **ETHERNET** port to your network device, such as a switch.

4 Over ISDN: Use the included gray cable with a RJ-45 connector to connect the **DSL** port to another P-871M in CO mode.

Over POTS: Use the included gray cable with a RJ-11 connector to connect the **DSL** port to another P-871M in CO mode.

5 Use the included power adaptor to connect the **POWER** socket to a proper power source.

6 Push the power switch to the on position.

1.3 LEDs (Lights)

Look at the LEDs on the top panel of the P-871M.

- The **POWER** LED is on when the system is ready.
- The **ETHERNET** LED turns on if the **ETHERNET** port is connected to an Ethernet device and blinks when the P-871M is sending or receiving data through the **ETHERNET** port.
- The **DSL** LED is on if the VDSL connection between two P-871Ms is set up.
- The **CO** LED is on when the P-871M is operating in CO mode.

> **?**
> If none of the LEDs (lights) are on, check your connections. Make sure that you have the power adaptor connected to the P-871M and plugged in to an appropriate power source. Make sure the power source is turned on. Turn the P-871M off, wait for a few seconds and turn it back on. If the LEDs are still off, contact your vendor.

2 CLI Commands Configuration

When the P-871M is in CO mode, use the CLI (Command Line Interface) commands to configure it.

2.1 Syntax Conventions

This manual follows these general conventions:

- Units of measurement may denote the "metric" value or the "scientific" value. For example, "k" for kilo may denote "1000" or "1024", "M" for mega may denote "1000000" or "1048576" and so on.

Command descriptions follow these conventions:

- Commands are in `courier new` font.
- Required input values are in angle brackets <>; for example, `ping <ip-address>` means that you must specify an IP address for this command.
- Optional fields are in square brackets []; for instance `vdsl profile [1|2]`, the name field is optional.
- The `|` (bar) symbol means "or".
- *italic* terms represent user-defined input values; for example, in `vdsl downrate [y]`, *y* can be replaced by the actual data rate that you want to set, for example, 10000.
- A key stroke is denoted by square brackets and uppercase text, for example, [ENTER] means the "Enter" or "Return" key on your keyboard.

2.2 Accessing the CLI

1 Connect your computer to the console port and use terminal emulation software configured to the following parameters:

- VT100 terminal emulation
- 38400 bps
- No parity, 8 data bits, 1 stop bit
- No flow control

2 Press [ENTER] to open the login screen.

3 Enter the system login password.

The default system password is 1234.

2.3 Commands Summary

The following table lists the commands available on the P-871M.

Use the ? or help command to see the available commands.

Command	Description
sys	Displays the system information and port settings, including the current firmware version and VDSL data rate. lt=line termination, means CO mode; nt=network termination, means CPE mode
help	Displays all available commands.
exit	Logs you out of the CLI.
passwd	Changes the system login password.
default	Returns the P-871M to the factory defaults.
upgrade <fw|conf>	Uploads the P-871M's firmware or configuration file.
vdsl uprate [x]	Displays or sets the VDSL upstream data rate. x: Enter the rate from 2000 to 100000 in Kbps.
vdsl downrate [y]	Displays or sets the VDSL downstream data rate. y: Enter the rate from 2000 to 100000 in Kbps.
vdsl snr [z]	Displays or sets the VDSL SNR margin. z: Enter the SNR margin from 0 to 24 in dB.
vdsl interleave [i]	Displays or sets the VDSL interleave delay. i: Enter the interleave delay from 0 to 100 in 0.5 ms (milisecond).
vdsl profile [1|2]	Displays or sets the VDSL profile. 1: 12a, PSD:998-M1x-B 2: 12a, PSD:997-M1x-M
vdsl reset	Resets the VDSL chipset.
vdsl reconnect	Forces the P-871M to re-build up the VDSL connection.

Command	Description
vdsl debug	Displays VDSL debugging information.
vdsl show	Displays the VDSL status and performance data.
vdsl active [on|off]	Displays the VDSL port status or enables/disables the VDSL port.
enet auto [on|off]	Displays or sets auto-negotiation mode.
enet speed [10|100]	Displays or sets the Ethernet port speed (10 or 100 Mbps).
enet duplex [full|half]	Displays or sets the Ethernet duplex mode.
enet fctrl [on|off]	Displays or sets flow control.
enet status	Displays the Ethernet port statistics.
enet clear	Removes the Ethernet port statistics.

3 Firmware Upgrade

This section shows you how to upload firmware via the console port.

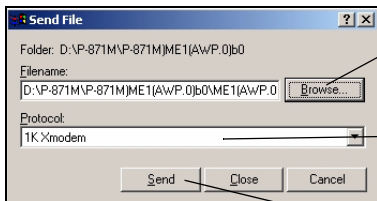Do not interrupt the file transfer process as this may PERMANENTLY DAMAGE your P-871M.

1 Obtain the firmware file, unzip it and save it in a folder on your computer.

Only upload firmware for your specific model!

2 Access the CLI and type the `upgrade fw` command.
3 Type `y` and press [ENTER].
4 When you see the `Press any key to start` message, press a key and activate XMODEM upload on your terminal.

5 This is an example Xmodem configuration upload using HyperTerminal. Click **Transfer**, then **Send File** to display the following screen.

Type the firmware file's location, or click **Browse** to search for it.

Choose the **1K Xmodem** protocol.

Then click **Send**.

6 After a successful firmware upload, the P-871M restarts.

```
VDSL>upgrade fw
This operation will overwrite the old firmware! Continue?(Y/N) y

You MUST NOT abort this operation after XMODEM data transfer begins.
Otherwise the device will be damaged.
Restart your device before XMODEM transfer begins to quit the upgrade
process.
Press any key to start...

Send firmware using the Xmodem protocol from your terminal emulator
now...
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCXmodem successfully received 268288
bytes
Firmware upgrade success!!

Rebooting...

Press any key to bypass loading Modem Code and Configurations...

User configurations does not exist, use default configurations
instead!!

ZyXEL(R) Prestige VDSL-LT Modem Version ME1(AWP.0)
Copyright (C) ZyXEL Corp 2005-2008. All rights reserved.

System initializing...

VDSL Modem Code Version: 030103
VDSL Profile: 12a,PSD:998-M1x-B

Reset VDSL Chip...
Writing 98844 bytes Modem Code...

Platform, Port initialized

Password:
```
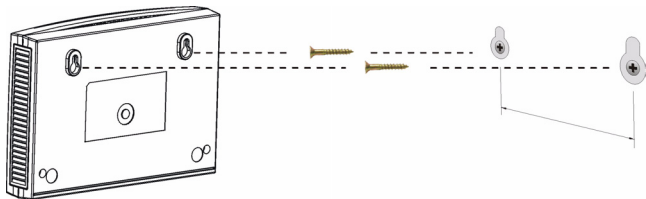
4 Wall-mounting Instructions

Complete the following steps to hang the P-871M on a wall.

1 Select a position free of obstructions on a sturdy wall.

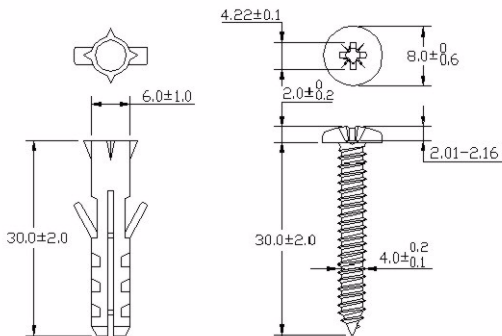**2** Drill two holes for the screws (M4*30). The centers of the holes should be 120 mm apart.

> Be careful to avoid damaging pipes or cables located inside the wall when drilling holes for the screws.

3 Do not screw the screws all the way into the wall. Leave a small gap of about 0.5 cm between the heads of the screws and the wall.

4 Make sure the screws are snugly fastened to the wall. They need to hold the weight of the P-871M with the connection cables.

5 Align the holes on the back of the P-871M with the screws on the wall. Hang the P-871M on the screws.

The following are dimensions of an M4 tap screw and masonry plug used for wall mounting. All measurements are in millimeters (mm).

Specifications

Specifications are accurate at the time of writing.

Feature	Specification
Default password	1234
Dimensions (mm)	189 (Wide) x 132 (Deep) x 40 (High)
Distance between the wall-mounting holes on the device's back	120 mm
Screw size for wall-mounting	M4*30
Weight	307 g

Feature	Specification
Ethernet Port	One RJ-45, 10/100Mbps Half / Full Auto-negotiation, Auto-crossover Ethernet port
DSL Port	One RJ-45 port for the VDSL connection over POTS or ISDN
Console Port	One DB-9 female connector for configurations via the CLI
CO/CPE Switch	Set the P-871M to work in CO mode or CPE mode
Power Supply	9 VAC @ 1A
Operation Temperature	0º C ~ 40º C
Storage Temperature	-20º ~ 60º C
Operation Humidity	20% ~ 85% RH
Storage Humidity	20% ~ 90% RH

Features

VDSL	• VDSL standard: ETSI/ANSI/ITU-T standard
	• Band Plan: 997 and 998 (Default:998)
	• VDSL Profile: 8a,12a (2,3,4 band), with U0 band
	• VDSL Band Plan and Profile setting:
	• Profile 1: 998
	• Profile 2: 997
	• PSD: 997-M1x-M; 998-M1x-B
	• Modulation: DMT
Network Protocols	• IEEE 802.3 10BaseT Ethernet
	• IEEE 802.3u 100BaseTx Ethernet
	• IEEE 802.3x Flow control
	• IEEE 802.1D transparent bridging
	• Flow control in full duplex mode
	• Back pressure in half duplex mode

Safety Warnings

For your safety, be sure to read and follow all warning notices and instructions.

- Do NOT use this product near water, for example, in a wet basement or near a swimming pool.
- Do NOT expose your device to dampness, dust or corrosive liquids.
- Do NOT store things on the device.
- Do NOT install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do NOT open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Use ONLY an appropriate power adaptor or cord for your device. Connect it to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe).
- Do NOT allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Do NOT use the device if the power adaptor or cord is damaged as it might cause electrocution.
- If the power adaptor or cord is damaged, remove it from the device and the power source.
- Do NOT attempt to repair the power adaptor or cord. Contact your local vendor to order a new one.
- Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- If you wall mount your device, make sure that no electrical lines, gas or water pipes will be damaged.
- Do not obstruct the device ventilation slots,as insufficient airflow may harm your device.
- To reduce the risk of fire, use only No. 26 AWG (American Wire Gauge) or larger telecommunication line cord.

- This product is recyclable. Dispose of it properly.

Legal Information

Certifications

Federal Communications Commission (FCC) Interference Statement

The device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operations.

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this device does cause harmful interference to radio/television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

Notices

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada.

Viewing Certifications

1 Go to http://www.zyxel.com.

2 Select your product on the ZyXEL home page to go to that product's page.

3 Select the certification you wish to view from this page.

ZyXEL Limited Warranty

ZyXEL warrants to the original end user (purchaser) that this product is free from any defects in materials or workmanship for a period of up to two years from the date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. ZyXEL shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor. You may also refer to the warranty policy for the region in which you bought the device at http://www.zyxel.com/web/support_warranty_info.php.

Related Documentation

Please go to http://www.zyxel.com for product news, firmware, documentation, and other support materials.

Registration

Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com for global products, or at www.us.zyxel.com for North American products.

User Guide Feedback

Help us help you. E-mail all User Guide-related comments, questions or suggestions for improvement to techwriters@zyxel.com.tw or send regular mail to The Technical Writing Team, ZyXEL Communications Corp., 6 Innovation Road II, Science-Based Industrial Park, Hsinchu, 300, Taiwan. Thank you.

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Customer Support

In the event of problems that cannot be solved by using this manual, you should contact your vendor. If you cannot contact your vendor, then contact a ZyXEL office for the region in which you bought the device. Regional offices are listed below (see also http://www.zyxel.com/web/contact_us.php). Please have the following information ready when you contact an office.

Required Information

- Product model and serial number.
- Warranty Information.
- Date that you received your device.
- Brief description of the problem and the steps you took to solve it.

"+" is the (prefix) number you dial to make an international telephone call.

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