
**Please read this
document carefully
before installation!**

**ADSL Loop Extender and
ADSL Loop Extender Power Supply
Installation Manual**

Version: 006

Preface

This manual provides information on how to use this product. To make the best use of this product, please read this manual thoroughly before use and keep this manual handy for ease of reference.

- The contents of this document may be updated in the future, without prior notice.
- This booklet was created with thorough attention to the content. If, however, you have a question, spot an error, or find a description lacking, please refer to the end of this booklet for information on how to contact us.
- All brand names and trademarks are the property of their respective owners.

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1. General Description

ADSL Loop Extender can extend the coverage of ADSL lines. It will provide systems with higher performance-to-cost ratio, improve the equipment utilization rate and optimize the network. This product will allow you to double the number of subscribers that you can reach while offering more consistent high bandwidth services to your existing customers.

ADSL Loop Extender is an active element installed in the outside loop plant. It operates as an amplifier and equalizes the signal.

ADSL Loop Extender' Box and the business card are as below:

- WH-AE-8004PV6.2 Box: A Box for 4 WH-AE-800C1P embedded.
- WH-AE-8008PV6.2 Box: A Box for 8 WH-AE-800C1P embedded.
- WH-AE-800C1P: One port ADSL Loop Extender for one ADSL user, can be inserted

into the Extender's Box easily.

- WH-AE-800PWR: One port Power Supply, which can power for 1~8 WH-AE-800C1P cards, can be inserted into the Extender's Box easily.

Benefits

- ADSL users can be added by inserting the business cards WH-AE-800C1P.
- Economize the copper pairs for one additional pair can power four ADSL users.
- Comprehensive over-voltage protection.
- Easy to install, deploy and maintain.
- Low power consumption and more environmentally friendly

2. Technical Specifications

Table 1 –Technical Specifications of WH-AE-8004PV6.2 Box, WH-AE-8008PV6.2 Box, business card WH-AE-800C1P, power card WH-AE-800PWR

Operating Environment	Temperature	-40℃~+65℃
	Relative Humidity	5%~95% (Non-condensing)
Input Power	DC60V~DC122V	
Power Consumption	Less than 0.2W(per port)	
Max. Output Current	Less than 10mA(four ports fully loaded)	
	Less than 18mA(eight ports fully loaded)	
Dimension(LWH)	WH-AE-8004P V6.2 Box	215mm×290mm×82mm
	WH-AE-8008P V6.2 Box	315mm×290mm×82mm

3. Application

3.1 The actual lines connecting of equipment

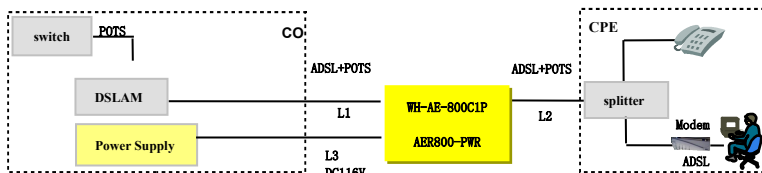


Figure 1 ADSL Loop Extender Application Diagram

L1: The signal twist pair connecting business card WH-AE-800C1P to DSLAM.

L2: The signal twist pair connecting business card WH-AE-800C1P to Modem.

L3: The power supply twist pair transiting DC116V to power card WH-AE-800PWR.

3.2 Ensure the upstream/downstream rate is no less than 128kbps/512kbps.

3.3 Resistance and distance demand

The recommended installation conditions are as follows.

- (1) 26 AWG twist pair

Table 2 -The demand about resistance and distance:

Route	Loop Resistance Demand Ohms (Min.-Max.)	Distance Demand (Min.-Max.)	
		kfeet	km
L1(CO-Extender)	450-1300	5.0-14.5	1.5-4.5
L2(Extender-CPE)	150-900	1.6-9.5	0.5-3.0
L(CO-Extender-CPE)	600-1800	6.5-20.0	2.0-6.0

- (2) 24 AWG twist pair

Table 3 -The demand about resistance and distance:

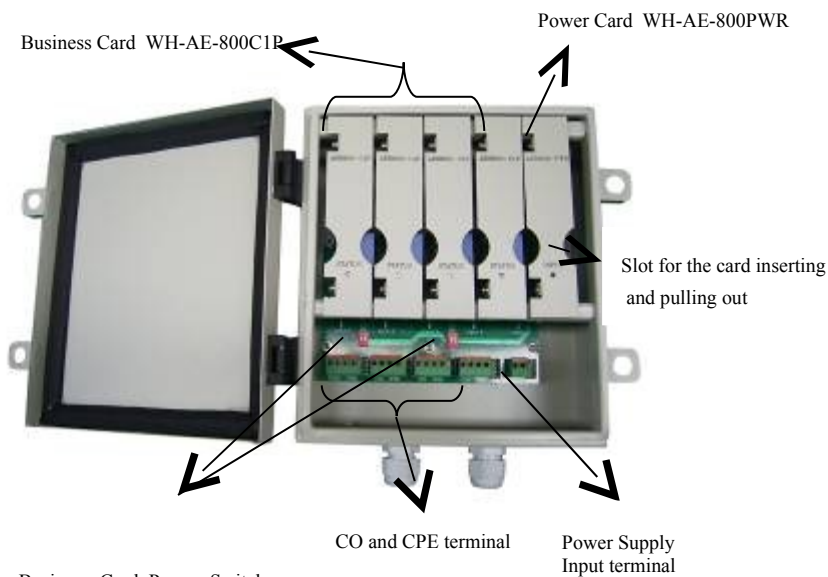
Route	Loop Resistance Demand Ohms (Min.-Max.)	Distance Demand (Min.-Max.)	
		kfeet	km
L1(CO-Extender)	270-1050	5.0-20.0	1.5-6.0
L2(Extender-CPE)	170-1050	3.0-20.0	0.9-6.0
L(CO-Extender-CPE)	550-1550	10.0-29.0	3.0-8.8

4. Physical Structure

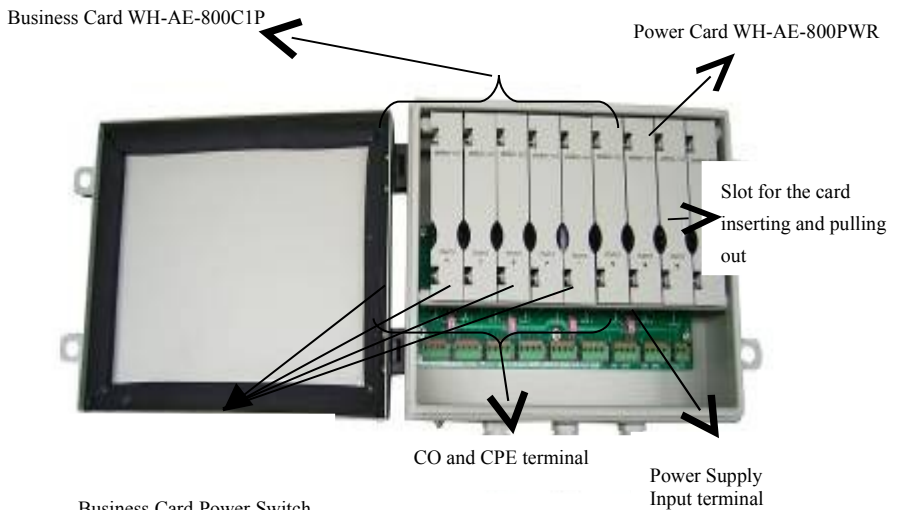
- WH-AE-8004PV6.2 Box: A Box for 4 WH-AE-800C1P embedded.

- WH-AE-8008PV6.2 Box: A Box for 8 WH-AE-800C1P embedded.
- WH-AE-800C1P: One port signal line power ADSL Loop Extender for one ADSL user, can be inserted into the Box easily.
- WH-AE-800PWR: One port Power Supply, which can power for 1~8 WH-AE-800C1P cards, can be inserted into the Extender's Box easily.

4.1 WH-AE-8004PV6.2/8P Box



Open the business card, make sure switch is set to ON. Not open the business card, make sure switch is set to OFF. Each card corresponds to each power switch bit.

Figure 2 WH-AE-8004PV6.2 Box

Business Card Power Switch. Open the business card, make sure switch is set to ON. Not open the business card, make sure switch is set to OFF. Each card corresponds to each power switch bit.

Figure 3 WH-AE-8008PV6.2 Box

Business card WH-AE-800C1P and power card WH-AE-800PWR can be easily inserted into the Box. Wiring sockets on front panel for twist pairs connecting.

4.2 Business card WH-AE-800C1P

In the Box, wiring sockets on front panel for twist pairs connecting. “CO” connects the signal line from DSLAM to WH-AE-800C1P, “CPE” connects the line to the modem. LED lights indicate power supply status. Please follow the Figure 2/3.

4.3 Power card WH-AE-800PWR

In the Box, wiring sockets on front panel for twist pairs connecting. “Input” connects the line from Power Supply. LED lights indicate power supply status. Please follow the Figure 2/3.

5. Installation Procedure

5.1 Unpack

Unpack equipment carefully; check for completeness against the purchase order. Notify the supplier if items are missing.

Note: Save packing material. All equipment returned must be packed in the original packing material.

Inspect equipment for shipping damage, including bent or loose hardware, and broken connectors. If equipment was damaged in transit, contact the supplier.

5.2 Install the Power Supply

Generally , the Power Supply is installed either at CO. AC110V,AC220V or DC48V can be selected, make sure the type of power supply you ordered. One Spare copper pair is needed for deliver the output voltage to WH-AE-800PWR.

5.3 Install the ADSL Loop Extender

(1) Fix the WH-AE-8004V6.2/8PV6.2 Box in the junction cabinet or at the supplied mounted

brackets. Ground the Box through the grounding screw in the bottom outside the Box.

Attention: Copper-core wire with no less than 2.5mm² section area is required as ground wire. One end of the wire should connect to Loop Extender's ground terminal. The other end of the wire should connect to a good ground point.

(2) Insert power card WH-AE-800PWR into WH-AE-8004V6.2/8PV6.2 Box.

(3) Insert business card WH-AE-800C1P into WH-AE-8004V6.2/8PV6.2 Box.

(4) Connect the cable

Connect the power input line which from the Power Supply (DC116V) into the WH-AE-800PWR.

Connect the signal line to WH-AE-800C1P, the line from DSLAM to the "CO" socket, the line linked to the modem to the "CPE" socket.

Attention: The Power Supply should NOT be turn on until the Extender installation is finished.

(5) Power on: after confirming that all the twist-pair cables are connected correctly and Box is securely installed, **When open the business card, please make sure Business Card Power Switch is set to ON. Not open the business card, please make sure Business Card Power Switch is set to OFF. Each card corresponds to each power switch bit.** After power on the system, the ADSL Loop Extender will work within 10 seconds after power is supplied steadily.

6. Troubleshooting

Table 4 ADSL Loop Extender Power Supply Troubleshooting

Problem Description	Possible Reason	Suggested Resolution
Equipment does not work after power-up. Status LED is OFF.	Power supply cable is not correctly connected.	Check power supply cable connection.
Output is OK but the Extender does not work.	Power output cable connection is error or short.	Correct the power output connection or check cable. Or check whether the distance between DSLAM, Extender, Modem is proper.

Table 5 - ADSL Loop Extender Troubleshooting

Problem Description	Possible Reason	Suggested Resolution
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Extender does not work after power-up. Power supply card status LED is OFF.		Power supply cable is not connected properly.	Check power supply and power cable.
No connection	Business Card status LED is always on.	Cables at DSLAM side or Modem side are not connected properly.	Correct the cable connection.
		Line quality is worse between CO and CPE side.	Change good quality cable.
		There is telephone before the splitter on CPE side.	Discard the telephone before the splitter on CPE side.
		Cables linked ADSL Loop Extender are not connected properly.	Correct the cable connection. Or check whether the distance between DSLAM, Extender, Modem is proper.
There is noise in user's telephone		Cable is connected to ground or the insulation is not good caused by men during the construction process.	Check the cables.
		Cable is too near to some electric equipments with strong magnetic field, such as high power sounder, selenium rectifier and high power motor.	Make cable far from the strong magnetic field.
Internet is slow, frequent off-line problem		Affection of computer hardware failures, system failures and virus.	Check computer or take with PC, testers and so on to deal with.
		The parallel cable at CPE side is too long or the connector is oxidation.	It is better to change the parallel cable to copper twist cable.
		The cable to CPE side is connected with too many connectors.	Avoid exposed connectors, use good quality cable instead scattered connectors.