



Safety and Precaution

Installation

- Use only the type of power source indicated on the marking labels.
- Use only power adapter supplied with the product.
- Do not overload wall outlet or extension cords as this may increase the risk of electric shock or fire. If the power cord is frayed, replace it with a new one.
- Proper ventilation is necessary to prevent the product overheating. Do not block or cover the slots and openings on the device, which are intended for ventilation and proper operation. It is recommended to mount the product with a stack.
- Do not place the product near any source of heat or expose it to direct sunlight.
- Do not expose the product to moisture. Never spill any liquid on the product.
- Do not attempt to connect with any computer accessory or electronic product without instructions from qualified service personnel. This may result in risk of electronic shock or fire.
- Do not place this product on unstable stand or table.

When in Use

- Power off and unplug this product from the wall outlet when it is not in use or before cleaning. Pay attention to the temperature of the power adapter. The temperature might be high.
- After powering off the product, power on the product at least 15 seconds later.
- Do not block the ventilating openings of this product.
- When the product is expected to be not in use for a period of time, unplug the power cord of the product to prevent it from the damage of storm or sudden increases in rating.

Service

Do not attempt to disassemble or open covers of this unit by yourself. Nor should you attempt to service the product yourself, which may void the user's authority to operate it. Contact qualified service personnel under the following conditions:

- If the power cord or plug is damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed.
- If the product has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance.

Caution

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

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The seller does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

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1. OVERVIEW

NetComm's NCT480 mini IP-DSLAM provides a cost effective ADSL service for up to 48 users over existing PSTN telephone wiring. The NCT480 connects directly to an internet router or LAN switch via Gigabit uplink ports and is designed to meet industry standards in functionality, performance and reliability.

The NCT480 (with firmware version R2.2 or later) is managed by its built-in web management interface. Command Line Interface (CLI) and Telnet interface are also available, please refer to Appendix A and B for details.

1.1 Product Specification

1.1.1 Hardware Specification

Specification	Description
Dimensions	2" x 19" or 23" x 11" (H x W x D)
Weight	With Splitter = 4 Kg
Console interface Management access	RJ-45 to RS-232 Female DB-9 adaptor cable Gigabit Ethernet out-band management
Power requirements	85Walt; -36VDC ~ -60VDC; ~2 Amp.
Front Panel Interfaces	2 x RJ-45 Gigabit Ethernet interface (10/100/1000 Base-T) 2 x mini-GBIC Optical interface (Alternative) 1 x 10/100 Base-T Management Port 1 x RS-232 Console Port 1 x Alarm I/O socket 2 x Telco-50P Female connectors for POTS 2x Telco-50P Female connectors for Lines Dual DC power source terminal
ADSL Subscriber interface	48 ports
ADSL Standards support	ANSI T1.413 ITU-T G.992.1, (G.dmt) Annex A ITU-T G.992.2, (G.lite) Annex A ITU-T G.992.3 (ADSL2) Annex A, AnnexL ITU-T G.992.5 (ADSL2+) Annex A, AnnexM
ATM Protocol	Ethernet over ATM (RFC 1483 bridge) IPoA (RFC 1483 route) PPPoA (RFC 2364) PPPoE (RFC 2516)
CO operating requirements	Temperature: 32° to 149°F (0° to 65°C) – Operating 23° to 149°F (-5° to 65°C) – Short-term operating 5° to 158°F (-15° to 70°C) – Storage Humidity: 5 to 95% (non condensing)
Safety Certification	CE FCC part 68 FCC part 15 IEC 60950 EN60950 AS/NZS 60950 BS EN60950 SS EN60950 CAN/CSA C22.2 No.60950 UL60950 EN55022

1.1.2 Software Specifications

Specification	Description
System Control	<ul style="list-style-type: none"> • Alarm Status Surveillance • Automatic alarm and status report • LED indication for system status <p>Performance Monitoring</p> <ul style="list-style-type: none"> • Line rate • RFC 2662/RFC 3440 compliant ADSL line performance parameters gathering <p>Configuration</p> <ul style="list-style-type: none"> • Support add, delete, query, and modify functions for configuration • IGMP snooping setting • VLAN setting • STP/RSTP setting • ADSL Subscriber line management per profile setting • System firmware upgrade through web interface or and download through TFTP • BOOTP/DHCP client <p>Security</p> <ul style="list-style-type: none"> • Support security and multiple level login
VLAN	Support IEEE 802.1Q VLAN Tagging, Port-based VLAN, and GVRP Support 512 VLANs concurrently Support IEEE 802.1ad VLAN stacking and VLAN translation
Link Aggregation	Support 802.3ad static and dynamic link aggregation
QoS	Support IEEE 802.1p with 8-priority queues DiffServ support Pack classification basis on MAC/IP addresses and TCP/UDP port number
Multicast	Support IGMP snooping on IGMPv1, IGMP v2 and IGMP v3 membership Up to 256 Multicast Groups and 256 copies for each Multicast Group Broadcast storm control
Bridging	4 K MAC addresses MAC, IP, TCP/UDP port addresses filtering
OAM and Access Control	ADSL Subscriber MAC address number limiting DHCP Relay Agent with option 82
Network Management	CLI through console and Telnet SNMP manageable by NMS (Planned) Web management Provide configuration, fault, performance, security management
Management MIB	RFC 1157 SNMP v1 SNMP v2c RFC 1213 MIB-II RFC 1493 Bridge MIB RFC 2233 IF-MIB RFC 2515 ATM MIB RFC 2674 802.1Q MIB RFC 2622 / RFC 3440 ADSL line MIB Enterprise NCT480 MIB

2. SYSTEM ASSEMBLY AND LOGICAL NETWORK DIAGRAM

A NCT480 IP DSLAM system contains the following components:

- NCT480 IP DSLAM (with rack mount plates attached) x1
- NCT2050 power supply unit (48VDC, 3.2A) x1
- AC power cord x1
- Wires (DC power connection) x1
- Serial Console Cable (RS232 9PINF-RJ45 connector) x1
- DSLAM Cables x 4 (See Appendix C for DSLAM cable pin assignment)
- CD ROM

Includes: NCT480 IP DSLAM Quick Start Guide
NCT480 IP DSLAM User Guide

Assemble the NCT480 IP DSLAM system as shown in Figure 1.

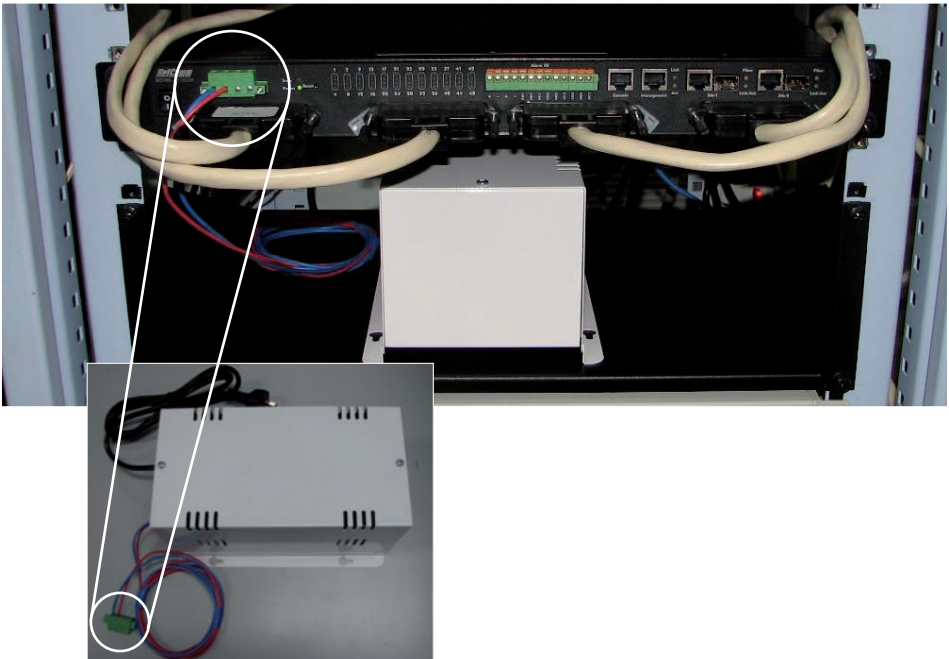


Figure 1: NCT480 IP DSLAM System Assembly

A logical network diagram of connecting the NCT480 IP DSLAM system is illustrated in Figure 2.

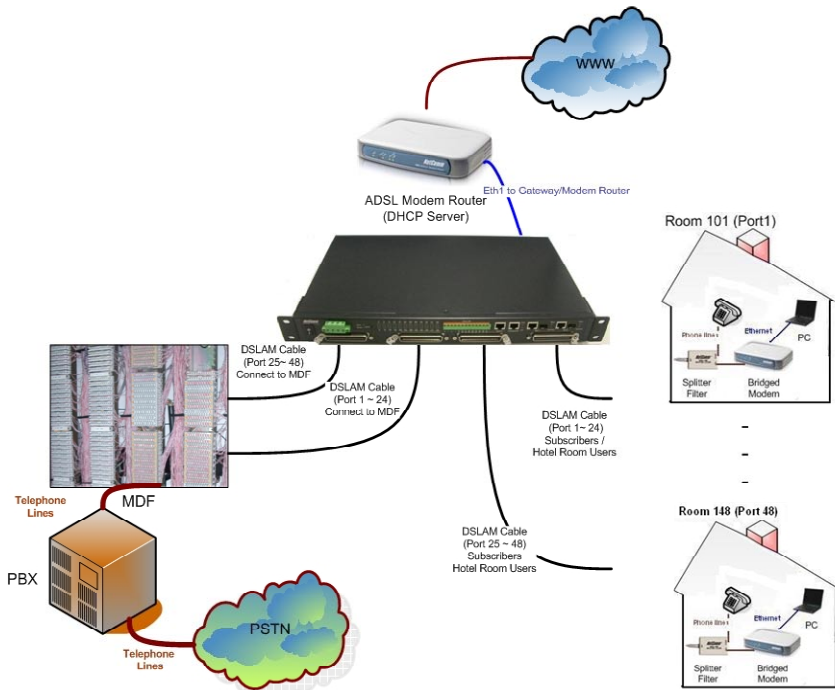


Figure 2: NCT480 IP DSLAM Logical network diagram – wet pair (shared data and voice)

A generic NCT480 application diagram is illustrated in Figure 3 and 4.

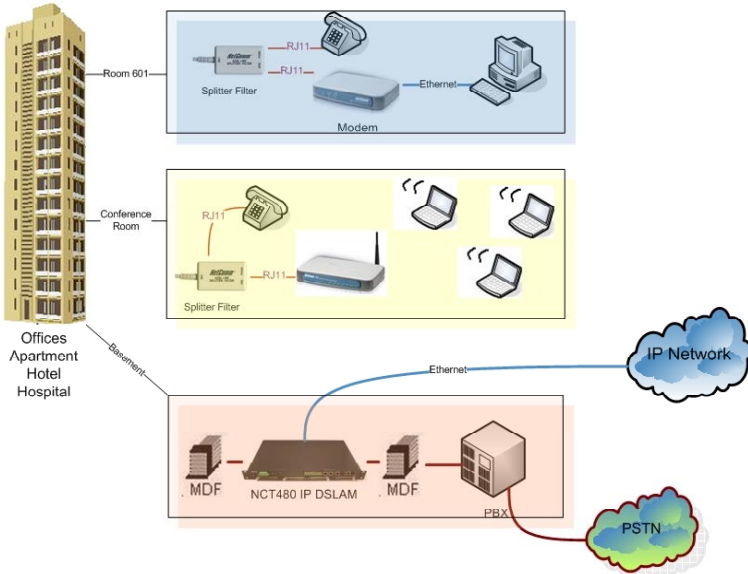


Figure 3: Block diagram of a NCT480 IP DSLAM in hotel environment.

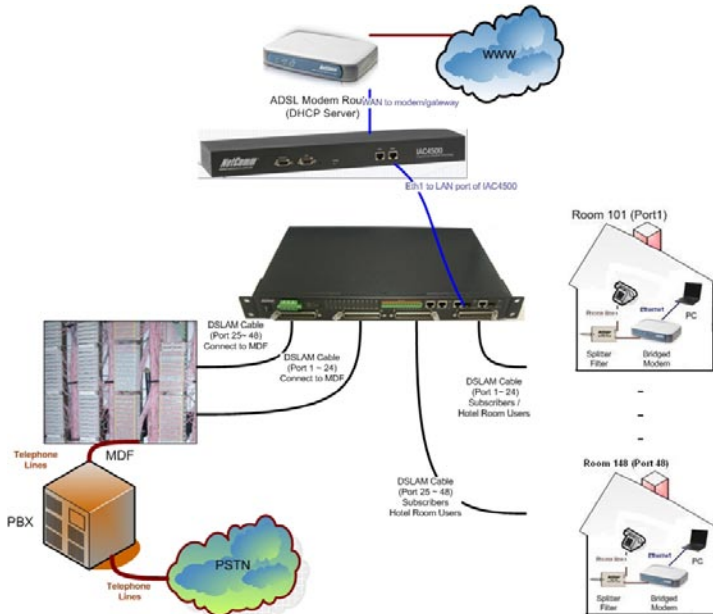


Figure 4: NCT480 IP DSLAM with IAC4500 Internet Access Controller.

3. GETTING TO KNOW YOUR NCT480 IP DSLAM

The NCT480 IP DSLAM is shipped with the following factory default settings

ADSL Layer

- VPCI (VPI/VCI) 8/35 for each ADSL port interface
- Encapsulation LLCMUX
- Standard ADSL2+ Auto

Bridge Layer and Ethernet IP

- Bridge Mode Restricted Mode
- Ethernet-1 IP address 0.0.0.0/0.0.0.0, Uplink
- Ethernet-2 IP address 0.0.0.0/0.0.0.0, Downlink
- Ethernet-3 IP address 192.168.1.1/255.255.255.0 (management port)

Management

- Firmware version R2.32 (or later)
- Web Management environment only compatible in Internet Explorer 6.0
- CLI user name/password admin/admin
- Telnet user name/password admin/admin
- Web GUI user name/password admin/admin

4. TIPS FOR NCT480 IP DSLAM INSTALLATION

4.1 LED DISPLAY OF THE NCT480 IP DSLAM

When you power on the NCT480 IP DSLAM, the DSLAM will take approximately 3 ~ 5 minutes to start up. During this time, there will not be any LED display as the DSLAM is busy with its internal start up and checking processes.

When the NCT480 IP DSLAM has completed the start up process, the LEDs which represent each ADSL port at the front panel will light up. They will then go into a periodically light ON and OFF flashing sequence. This indicates that the IP DSLAM is up and is monitoring all 48 ADSL ports status and performance.

4.2 WEB INTERFACE OF THE NCT480 IP DSLAM

A screen shot of the NCT480 IP DSLAM is illustrated as follows



4.3 LOCAL & REMOTE MANAGEMENT OF THE NCT480 IP DSLAM

NCT480 IP DSLAM can be managed locally via its management port Eth-3 by making use of its default IP Address. It can also be managed remotely via its uplink/downlink interfaces Eth-1 and Eth-2 from the WAN side of the DSLAM. By default, there is no IP address for the uplink/downlink interfaces. IP address will need to be assigned to them and it is only used for NCT480 system management purpose. The IP addresses assigned to uplink and downlink interface need to be in a different subnet.

4.4 COMMIT AND REBOOT IN THE NCT480 IP DSLAM

Settings must be saved by selecting Commit from the System Menu followed by Reboot System. A reboot process in NCT480 will generally takes approximately 5 minutes to complete.

APPENDIX A: NCT480 IP DSLAM COMMAND LINE INTERFACE (CLI)

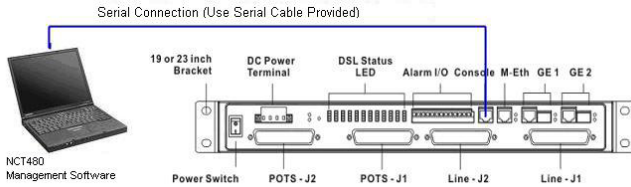


Figure 15: NCT480 IP DSLAM CLI connection



Figure 16: Serial cable for the NCT480 IP DSLAM

To access the CLI interface of the DSLAM, connect the serial console cable provided as shown in Figure 16. The default user name / password for console access are admin/admin.

Set the communication parameters of a VT100-compatible terminal as follows:

Parameter	Setting
Baud rate	9600
Data bits	8
Parity	None
Start bits	1
Stop bits	1
Flow control	None

Enter the following command line to check the IP address of the DSLAM management interface.

```
/>config ge show ge3
```

```
Interface:          ge3
IP Address:         192.168.1.1
Mask Address:       255.255.255.0
Use Dhcp:           no
Interface Type:     uplink
Mgmt VLAN ID:       0
Priority:            0
```

Enter the following command line to check the IP DSLAM system default gateway for system management traffic.

```
/>config mgmt default-route show
```

```
Default route: 0.0.0.0
```

Enter the following command line to check the IP DSLAM system information

```
/>config system-info show
```

```
System Description:  NCT480
System Uptime:       0 day(s) 1 hr. 13 min. 24 sec.
System Name:         sales@netcomm.com.au
System Contact:      Unit 1, 2-6 Orion Rd, Lane Cove NSW 2066, AUSTRALIA
System Location:     Unit 1, 2-6 Orion Rd, Lane Cove NSW 2066, AUSTRALIA
HW Version:          70
CPSw Version:        R2.32
Source Revision:     513
DSP Version:         E.67.1.11
```

(For more CLI commands details and explanations, please refer to NCT480 IP-DSLAM User Manual provided on the CD ROM.)

APPENDIX B: NCT480 IP DSLAM TELNET INTERFACE

NCT480 IP DSLAM also has a Telnet interface for DSLAM management and configuration. The commands available in Telnet interface are not as comprehensive as those in the CLI interface and the Web Management Interface

The Telnet session requires a username and password to access, the default username and password are listed below and they are case sensitive:

User Name: admin

Password: admin

(For Telnet interface usage and detailed explanations, please refer to NCT480 IP-DSLAM System Configuration Section of the User Guide provided on the CD-ROM)

APPENDIX C: NCT480 IP DSLAM CABLE PIN ASSIGNMENT

NCT480 IP DSLAM Cable Pin Assignment					
Wire Color	LINE /POTS Ports Pin No.	ADSL Port No.	Wire Color	LINE / POTS Ports Pin No.	ADSL Port No.
Blue	1	P1 or P25	Orange/Brown	13	P13 or P37
White	26		White	38	
Orange	2	P2 or P26	Orange/Grey	14	P14 or P38
White	27		White	39	
Green	3	P3 or P27	White/Green	15	P15 or P39
White	28		White	40	
Brown	4	P4 or P28	Green/Brown	16	P16 or P40
White	29		White	41	
Grey	5	P5 or P29	Grey/Green	17	P17 or P41
White	30		White	42	
White/Blue	6	P6 or P30	White/Brown	18	P18 or P42
White	31		White	43	
Orange/Blue	7	P7 or P31	Brown/Grey	19	P19 or P43
White	32		White	44	
Green/Blue	8	P8 or P32	White/Grey	20	P20 or P44
White	33		White	45	
Brown/Blue	9	P9 or P33	Blue	21	P21 or P45
White	34		Yellow	46	
Grey/Blue	10	P10 or P34	Orange	22	P22 or P46
White	35		Yellow	47	
White/Orange	11	P11 or P35	Green	23	P23 or P47
White	36		Yellow	48	
Orange/Green	12	P12 or P36	Brown	24	P24 or P48
White	37		Yellow	49	
			Grey	25	Nil/Nil
			Yellow	50	

Table 1: NCT480 IP DSLAM cable pin assignment – Telco 50 way tail Male to open 6m cable

APPENDIX D: LEGAL & REGULATORY INFORMATION

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Customer Information

ACA (Australian Communications Authority) requires you to be aware of the following information and warnings:

- (1) This unit shall be connected to the Telecommunication Network through a line cord which meets the requirements of the ACA TS008 Standard.
- (2) This equipment has been tested and found to comply with the Standards for C-Tick and/or A-Tick as set by the ACA. These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:
 - *Change the direction or relocate the receiving antenna.*
 - *Increase the separation between this equipment and the receiver.*
 - *Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.*
 - *Consult an experienced radio/TV technician for help.*
- (3) The power supply that is provided with this unit is only intended for use with this product. Do not use this power supply with any other product or do not use any other power supply that is not approved for use with this product by NetComm. Failure to do so may cause damage to this product, fire or result in personal injury.

Product Warranty

The warranty is granted on the following conditions:

1. This warranty extends to the original purchaser (you) and is not transferable;
2. This warranty shall not apply to software programs, batteries, power supplies, cables or other accessories supplied in or with the product;
3. The customer complies with all of the terms of any relevant agreement with NetComm and any other reasonable requirements of NetComm including producing such evidence of purchase as NetComm may require;
4. The cost of transporting product to and from NetComm's nominated premises is your responsibility; and,
5. NetComm does not have any liability or responsibility under this warranty where any cost, loss, injury or damage of any kind, whether direct, indirect, consequential, incidental or otherwise arises out of events beyond NetComm's reasonable control. This includes but is not limited to: acts of God, war, riot, embargoes, acts of civil or military authorities, fire, floods, electricity outages, lightning, power surges, or shortages of materials or labour.
6. The customer is responsible for the security of their computer and network at all times. Security features may be disabled within the factory default settings. NetComm recommends that you enable these features to enhance your security.

The warranty is automatically voided if:

1. You, or someone else, use the product, or attempts to use it, other than as specified by NetComm;
2. The fault or defect in your product is the result of a voltage surge subjected to the product either by the way of power supply or communication line, whether caused by thunderstorm activity or any other cause(s);
3. The fault is the result of accidental damage or damage in transit, including but not limited to liquid spillage;
4. Your product has been used for any purposes other than that for which it is sold, or in any way other than in strict accordance with the user manual supplied;
5. Your product has been repaired or modified or attempted to be repaired or modified, other than by a qualified person at a service centre authorised by NetComm; and,
6. The serial number has been defaced or altered in any way or if the serial number plate has been removed.

Limitations of Warranty

The Trade Practices Act 1974 and corresponding State and Territory Fair Trading Acts or legalisation of another Government ("the relevant acts") in certain circumstances imply mandatory conditions and warranties which cannot be excluded. This warranty is in addition to and not in replacement for such conditions and warranties.

To the extent permitted by the Relevant Acts, in relation to your product and any other materials provided with the product ("the Goods") the liability of NetComm under the Relevant Acts is limited at the option of NetComm to:

- *Replacement of the Goods; or*
- *Repair of the Goods; or*
- *Payment of the cost of replacing the Goods; or*
- *Payment of the cost of having the Goods repaired.*

All NetComm ACN 002 490 486 products have a standard 12 months warranty from date of purchase. However some products have an extended warranty option (refer to packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at

www.netcomm.com.au

Contact Information

If you have any technical difficulties with your product, please do not hesitate to contact NetComm's Customer Support Department.

Email: support@netcomm.com.au

www.netcomm.com.au

Note: NetComm Technical Support for this product only covers the basic installation and features outlined in the Quick Start Guide. For further information regarding the advanced features of this product, please refer to the configuring sections in this User Guide or contact a Network Specialist.

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