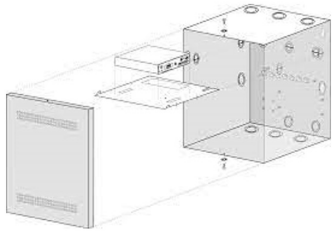


NOTIFIER NCB-FL Series Network Combiner Routers Instruction Manual

NCB-EL and NCB-FL Router
Product Installation Document

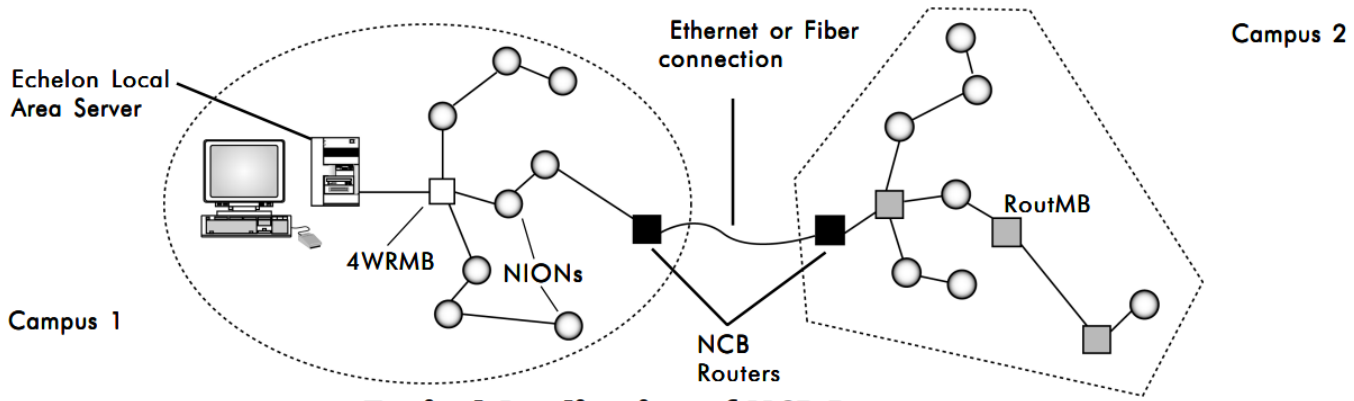
This document covers the procedures and specifications for installing the above listed unit(s) and when appropriate, information regarding configuration on the monitored device. For more detailed configuration and operation information, refer to the Network Installation Manual or Echelon Local Area Server Manual as appropriate.

Contents

NCB-EL and NCB-FL Series Network Combiner Routers

NCB routers are Echelon network devices that, when used in pairs, allow you to connect multiple Echelon networks in real time, spanning great distances.
NCB-EL – Communication between two NCB-EL routers is via an Ethernet-to-Lonworks connection that uses standard CAT 5 Ethernet cross-over cable.

NCB-FL – Communication between two NCB-FL routers is via an Ethernet Fiber-to-Lonworks connection that uses dedicated fiber optic wire runs.



Typical Application of NCB Routers

These routers allow you to connect Echelon network segments isolated by great distances that cannot be spanned by conventional wire media. Maximum wire lengths are listed in the NCB Wiring Distance Limitations Table on page 4 and should be considered the ABSOLUTE MAXIMUM. In many cases, where special care is not taken to protect the specified wire from electrical noise, moisture, etc., reliable long-term operation cannot be sustained at these wire lengths.

Ethernet Communication – EL and FL

NCB-EL and NCB-FL routers allow multiple LonWorks® networks to be connected in real-time, covering distances from campus-wide to global; these routers use Internet Protocol (IP) for data transport. Communication between networks via NCB router units is “live,” delayed only by the transit time through the integral routers and Ethernet
channel. The NCB-EL uses standard CAT5 cross-over cable, and the NCB-FL uses dedicated fiber optic cable.

Configuring the NCB-EL/NCB-FL Router

NCB-EL/NCB-FL routers are always used in pairs (EL with EL and FL with FL) with one at each end of the Ethernet network path. Initial router configuration is handled by a set of DIP switches on the front of each router labeled OPTION. Switches one through six are not used; switches seven and eight are used to configure the router for the type of network media being used: 10Base2 (not used for this application), 10BaseT (used for the NCB-EL), or AUI (used for the NCB-FL). The NCB reads the DIP switch settings at power-up or after you press the RESET button. These switches are used to set the following options:

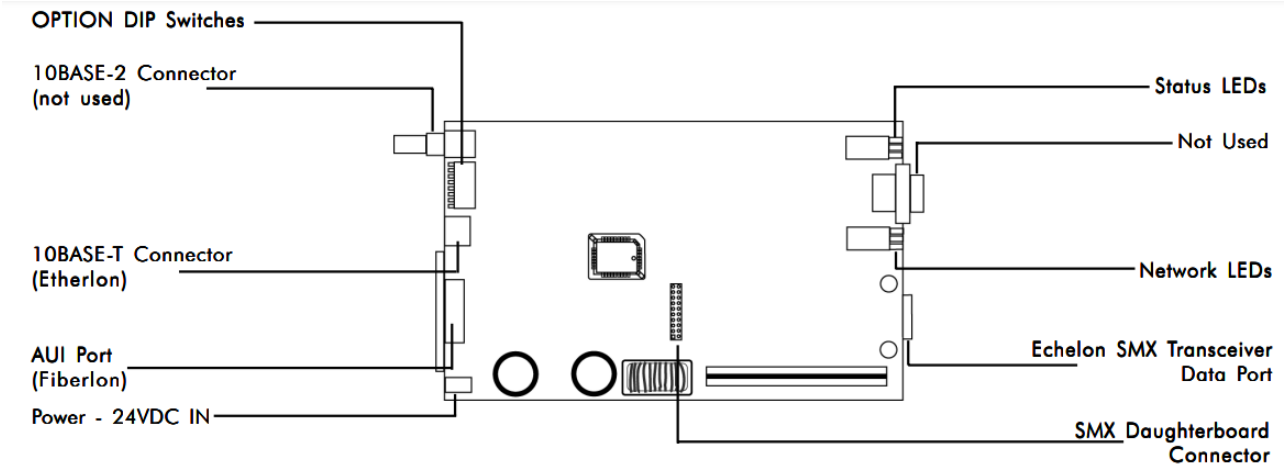
Position		**Function**
1.6		Not Used, Leave Up
7	**8**	**Ethernet Port**
UP	X	10BaseT
DN	UP	10Base2 (not used)
DN	DN	AUI

NCB-EL/NCB-FL DIP Switch Settings

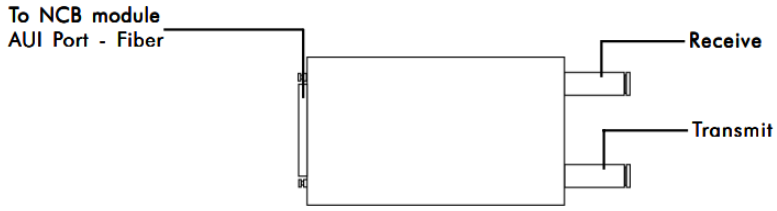
NOTE: For detailed information on NCB-EL/NCB-FL router configuration, refer to the manufacturer’s documentation included with the product.

NCB-EL and NCB-FL Routers

These two routers are similar in function to the NCB-IM. Physically, they differ from NCB-IM routers in that they are external routers, and they communicate over Ethernet instead of a telephone line. The 10BaseT and AUI ports provide for the connection to the Ethernet network. Only one port can be used at any one time.



NCB-EL/NCB-FL Router Motherboard



NCB-FL Fiber Adapter

NCB-EL/NCB-FL Status LEDs
ACT (yellow) – Activity LED (ACT); indicates a packet has been passed by the router.
ERR (red) – Error. Indicates one of three things:
a) Always on: a diagnostic error has occurred.
b) Slow flash or always on: insufficient configuration information is present.
c) Quick flash: insufficient IP configuration information.
Green – Power; indicates when power is present for the router.
NCB-EL/NCB-FL Network LEDs
ETH RX (yellow) – Ethernet Receive; indicates when a packet has been detected on the Ethernet port.
WINK (red) – Flashes for two seconds when the Control Neuron receives a Wink Network Management command.
ETH TX (green) – Ethernet Transmit; indicates when a packet is transmitted on the Ethernet port.
Reset, CSVC and RSVC Buttons
Reset – Hardware reset for the entire NCB router.
CSVC – Service button for the router's Neuron processor.
RSVC – Service button for the router module.

NCB-EL Installation Requirements:

1. NCB-EL Network Combiner Module
2. SMX Echelon network transceiver
3. NCB Power Supply (24 Volt DC 400mA, center POSITIVE, outer NEGATIVE)
4. Ethernet cross-over cable for a direct connection, or a standard Ethernet cable otherwise (must be supplied by

customer)

5. NISCAB-5
6. HSP-121B Surge Suppressor

NCB-FL Installation Requirements:

1. NCB-FL Network Combiner Module
2. SMX Echelon network transceiver
3. CentreCOM Fiber Optic Transceiver with provided extension cable
4. NCB Power Supply (24 Volt DC 400mA, center POSITIVE, outer NEGATIVE)
5. HSP-121B Surge Suppressor
6. Bidirectional fiber optic cable (must be supplied by customer)
7. NISCAB-5

NCB Series Power Supply Requirements
The NCB-EL and NCB-FL require 24 VDC @ 0.050 A nominal and battery backup in accordance with local code requirements. It can be powered by any power limited, filtered 24 VDC source, as appropriate for your area, for use with fire protective signaling units. Power connections are made via plug-in screw terminals.

 **NOTE:** The NCB power supply unit requires 115 VAC, 60Hz primary power.
A UPS (Uninterruptable Power Supply) for use with fire protective signalling units is required for each unit.

Router Type	Cable Type	Max Distance
NCB-IM phone line	Public switched telephone circuits	N/A
NCB-IM leased tine	Leased line telephone circuits	N/A
NCB-IM dry contact	Voice grade (CATS) copper pair, 22.24 AWG-x• ,	6,003 to 8,003 ft
	High data grade copper pairs (CATS), heavier than normal gauge (such as 18 gauge or better) to lower resistance"””	15,000 to 20,003 ft
	14 to 18 gauge THIN power wire (not twisted)	3,003 to 4,003 ft
NCB-EL to NCB-EL direct	CAD Ethernet crossover cable	303 ft
NCB-EL to NCB-EL with ENI C-HUB	CATS EThemet cable	300 • 330= 600 ft total
NCB-FL	Multimode fiber with ST connector	32,503 ft

NCB Wiring Distance Limitations Table

TE 1: Unless specifically stated otherwise, all wire described is twisted, unshielded, and protected from electrical noise to the same extent computer network wiring would be if run in the same areas.
TE 2: The technical description for wire types normally specifies the wire gauge; for instance, wire specified as CAT-5 is normally 22 or 24 gauge. It takes a special effort to obtain wire that meets the electrical specifications (capacitance, characteristic impedance, velocity factor), exceeds the attenuation, and is a lower gauge wire, and

technically the wire at that point would no longer be “CAT 5.” Jobs using the NCB routers at these wire distances should be approved by Notifier prior to purchase.

Installing the Network Transceiver on NCB Series Routers

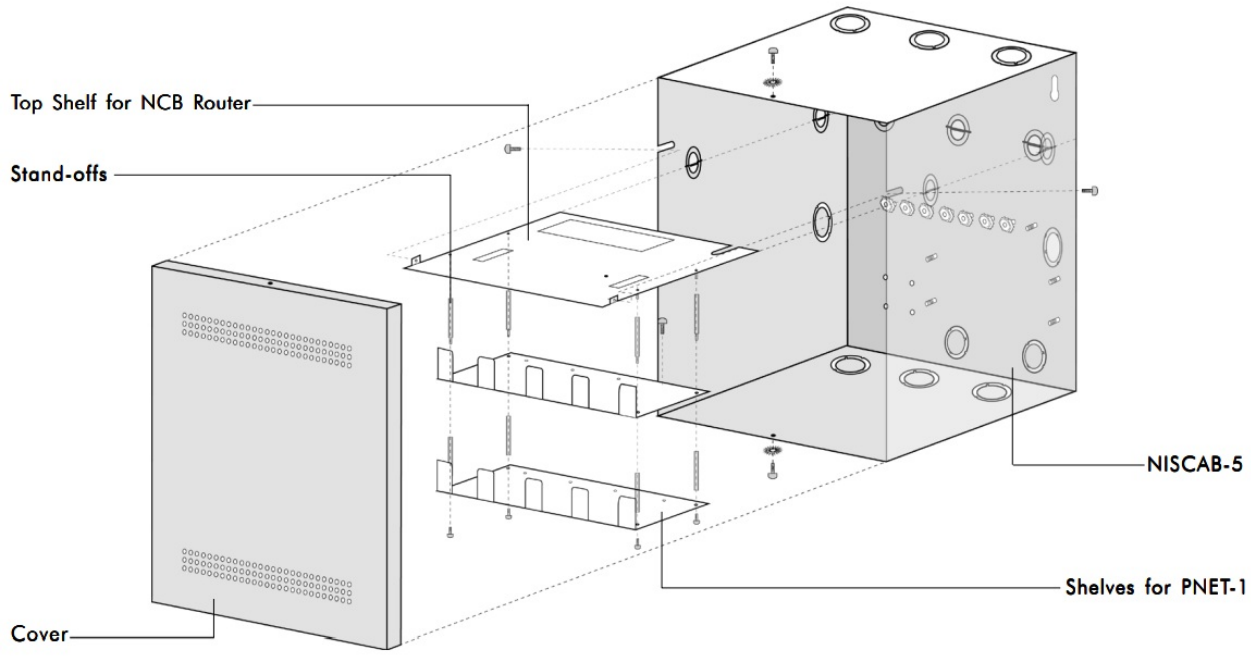
NCB routers require an SMX network transceiver to connect to the local Echelon network segment. Any standard network transceiver is supported by the NCB module. Follow these steps to install the transceiver:

1. Remove the back plate of the NCB router.

   CAUTION: Do not remove the router motherboard from the front panel.
2. Carefully remove the router motherboard from the enclosure.
3. Mount stand-offs provided with the transceiver to the motherboard.
4. Carefully mount the network transceiver by seating the header socket on the NCB SMX header.
5. Reinsert the motherboard into the NCB enclosure (be sure to attach network media to the network connec-tor on the transceiver first) and replace the back cover.

WARNING: DO NOT remove or replace the motherboard from the front panel of the enclosure. Doing so may damage the unit, causing the unit to malfunction when powered on. Doing so will void the unit’s warranty. Always remove and replace the motherboard from the rear of the enclosure.

NOTE: Power-limited and nonpower-limited circuits must remain separated in the cabinet. All powerlimited wiring must remain at least 0.25 inches from any nonpower-limited circuit wiring. Run all nonpower-limited wiring along bottom of cabinet. All power-limited and nonpower-limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits.



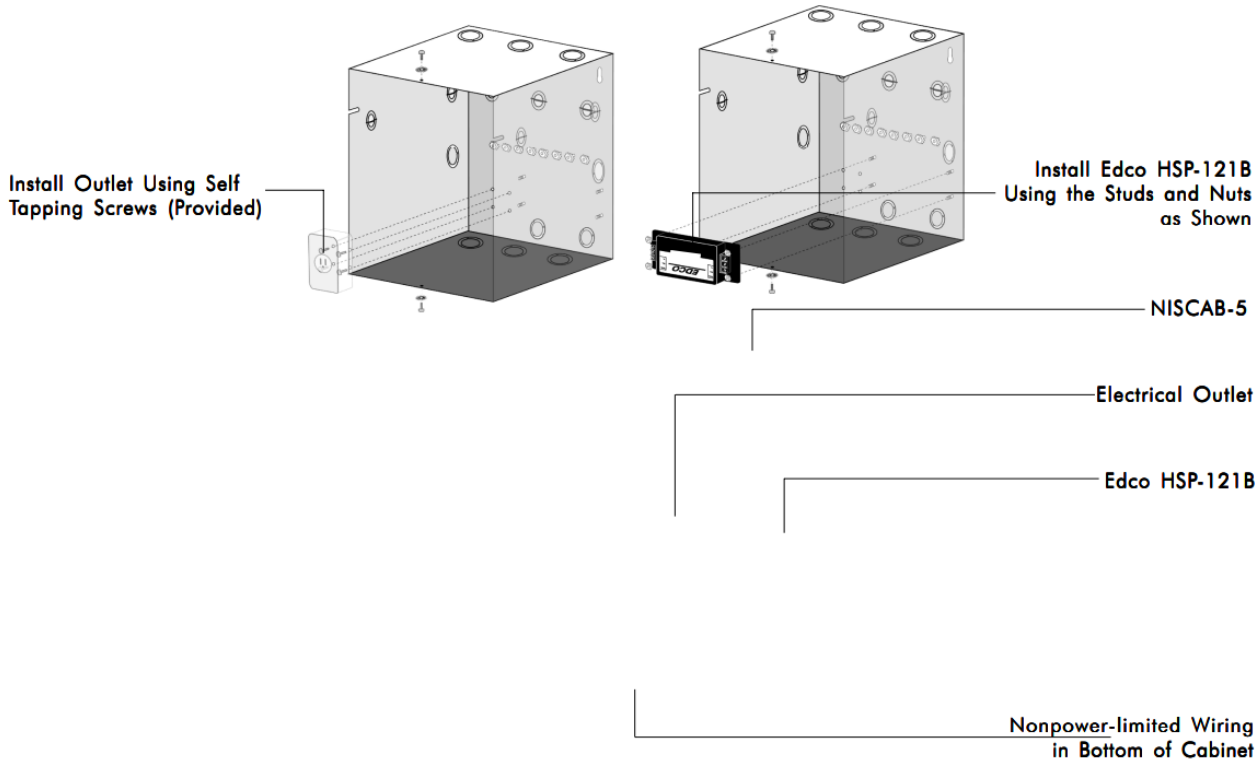
NISCAB-5 Shelf Installation

Installing the NCB-EL in the NISCAB-5

Mount a single gang electrical box in the NISCAB-5 back box using self tapping screws provided. Mount the HSP121B to the box using studs provided per the diagram on the following page. Once mounted, install a single, grounded electrical outlet in the box and connect the output from the HSP-121B. The HSP-121B must be

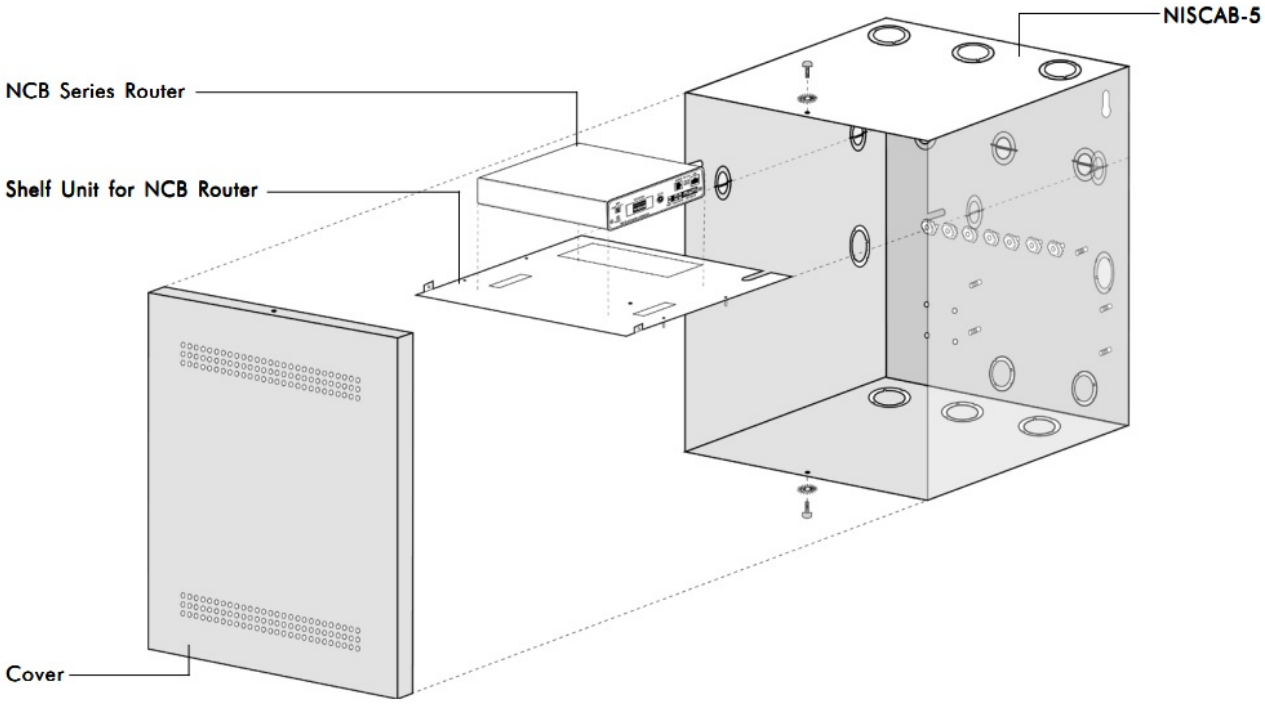
connected to primary power through conduit using knockouts supplied.

1. The NISCAB-5 is provided with three shelves and stand-offs for assembly of a shelf unit; however, only the top shelf is required for these applications.
2. Install the shelf according to the above figure.
3. Run the Echelon network lines to the cabinet in conduit. Connect the network wires (or fiber) to the SMX network transceiver.
4. When installing an NCB-EL, connect the Ethernet cable to the 10BaseT connector.
5. Connect the router transformer power plug to the power connector on the unit and slide the unit and shelf into the cabinet.
6. Plug the router power transformer into the electrical outlet.



HSP-121B/NISCAB-5 Installation

NOTE: Power-limited and nonpower-limited circuits must remain separated in the cabinet. All power-limited wiring must remain at least 0.25 inches from any nonpower-limited circuit wiring. Run all non-power-limited wiring along bottom of cabinet. All power-limited and nonpowerlimited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits.

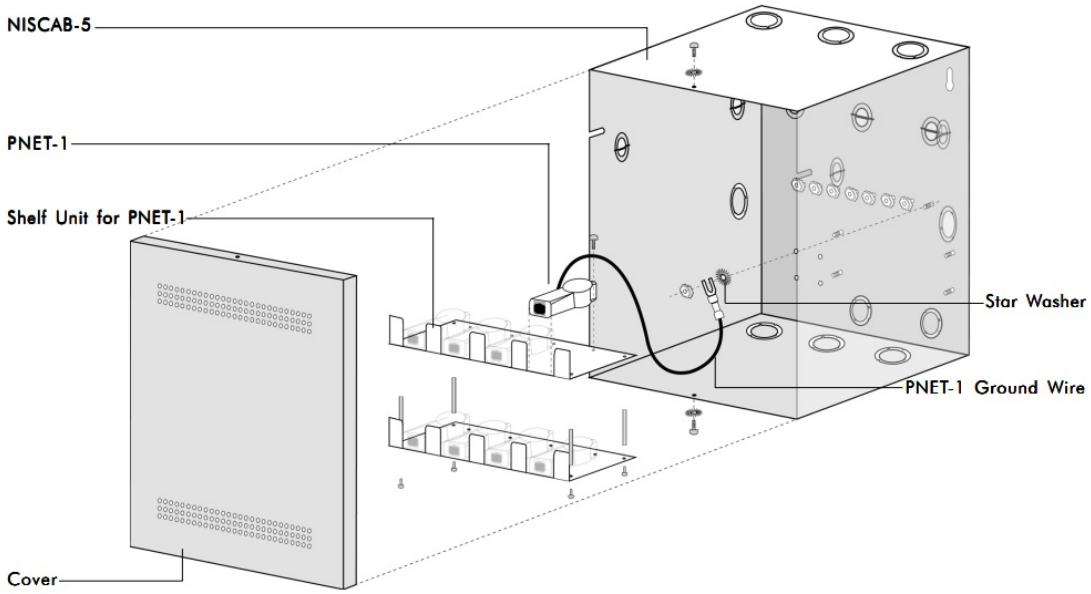


NCB-EL Router Installation Into the NISCAB-5

NOTE: Use only wire for power limited systems. Power limited wire runs use type FPLR, FPLP, FPL or equivalent cabling per NEC 760.

Installing a PNET-1 in the NCB-EL Assembly

The PNET-1 is a surge suppressor that protects an Ethernet line from power surges. Install the PNET-1 into the NISCAB-5 as shown in Figure 1-15.



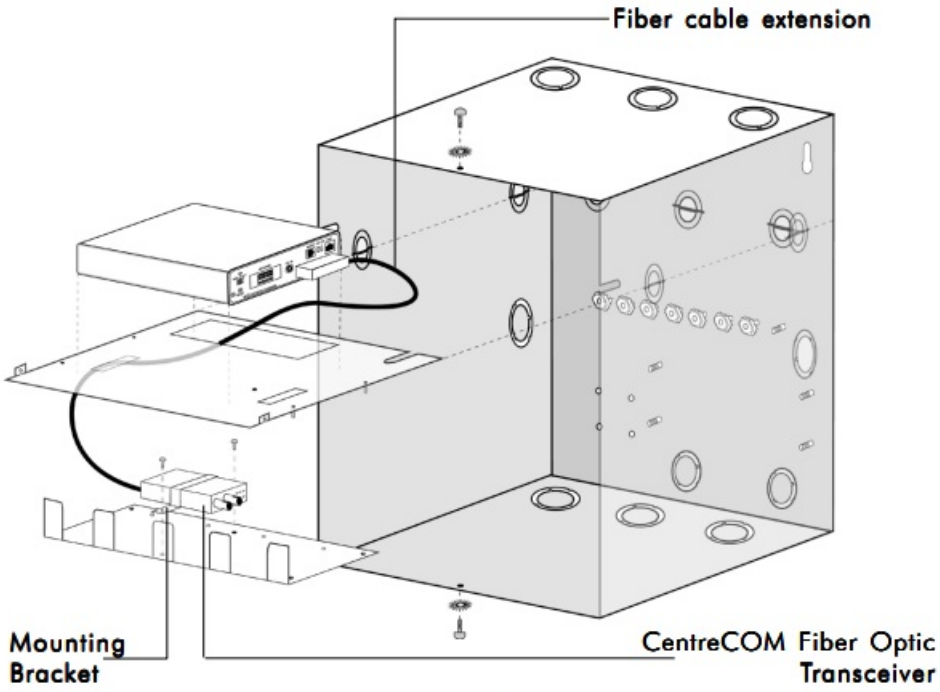
PNET-1 Installation Diagram

Connect the Ethernet cable from the 10Base-T Ethernet connector on the NCB-EL router to the PNET-1 IN connection (the square end). Run the Ethernet line from the OUT connection (the round end) to the LAN.

Installing the NCB-FL in the NISCAB-5

The NCB-FL requires the installation of a fiber cable extension between the router module and the CentreCOM Fiber Optic Transceiver.

1. Attach the fiber cable extension to the CentreCOM transceiver, and place them on the second shelf below the router mounting shelf. Mount the CentreCOM transceiver
   to the shelf using the bracket provided. Run the cable extension behind the router mounting shelf up to the router module.
2. Connect the network wires (or fiber) to the SMX network transceiver.
3. Connect the fiber cable to the AUI connector.
4. Connect the router transformer power plug to the power connector on the unit and slide the unit and shelf into the cabinet.
5. Plug the router power transformer into the electrical outlet.



NCB-FL Installation

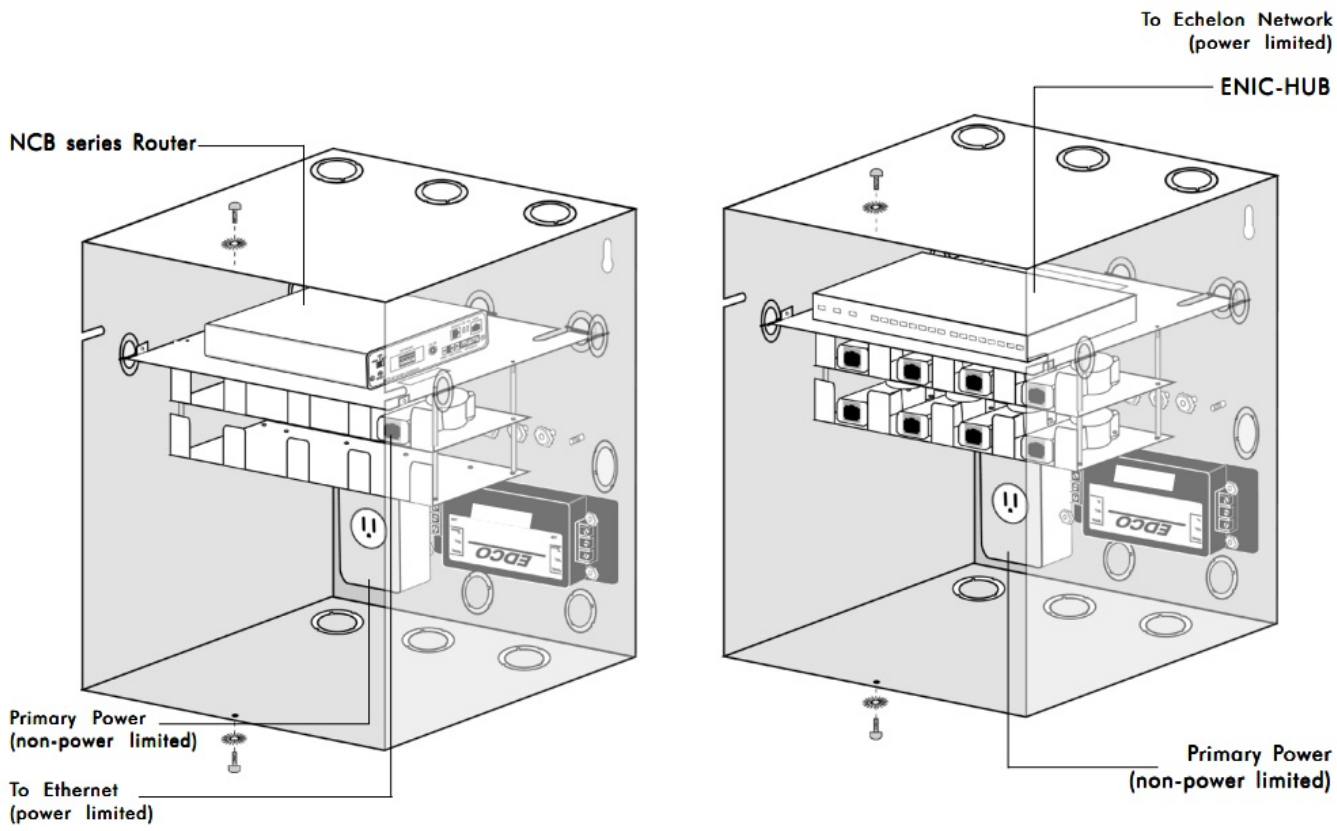
Using the ENIC-HUB with NCB Series Routers

The ENIC-HUB is an eight-port network hub that connects multiple devices to an Ethernet network. NCB series routers connect to the hub via one of these ports. Make the connections according to the following instructions:

1. Make sure all power is disconnected.
2. Connect the NCB (10BaseT connector) to its PNET-1 suppressor (the IN connector – square end).
3. Make the ground connection on the NCB's PNET-1 suppressor.
4. Connect the NCB's PNET-1 (OUT connector – round end) to one of the ENIC-HUB's PNET-1 (OUT connector) suppressors.
5. Connect the ENIC-HUB to the PNET-1, and make the ground connection for the PNET-1.

NOTE: Use only wire for power limited systems.

Power limited wire runs use type FPLR, FPLP, FPL or equivalent cabling per NEC 760.



NCB Series Router Connection to ENIC-HUB

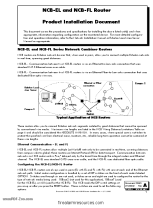
NOTE: Power-limited and nonpower-limited circuits must remain separated in the cabinet. All powerlimited wiring must remain at least 0.25 inches from any nonpower-limited circuit wiring. Run all nonpower-limited wiring along bottom of cabinet. All power-limited and nonpower-limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits.

NCB Programming

NCB Series routers must be added or inserted in the Echelon network like any standard router and bound using the Echelon Local Area Server application.
For more information on programming the NCB Series routers, refer to the NCB Series router appendix in the Echelon Local Area Server manual.

Document 51895 NCB-EL and NCB-FL Router Installation Rev. A 2/12/2002

Documents / Resources

	NOTIFIER NCB-FL Series Network Combiner Routers [pdf] Instruction Manual NCB-FL Series Network Combiner Routers, NCB-FL Series, Network Combiner Routers, Com biner Routers

References

- **Fire Alarm Resources | Download fire alarm documents**