NXA-ENET8-2POE Gigabit Ethernet Layer 2 PoE Switch

Overview

The NXA-ENET8-2PoE Gigabit Ethernet Switch features 8 x 1000 Base-T ports and 2 x 100/1000 Base-X SFP ports. It is designed for homes and businesses that require a managed network to efficiently handle voice, video, and data applications. Transmit both power and data through a single cable to eight remotely located Power-over-Ethernet (PoE) enabled devices such as AMX Touch Panels, Wireless Access Points, VoIP Phones and IP Surveillance cameras. And easily adjust settings to improve throughput, data prioritization and security with the user-friendly web-based management interface.
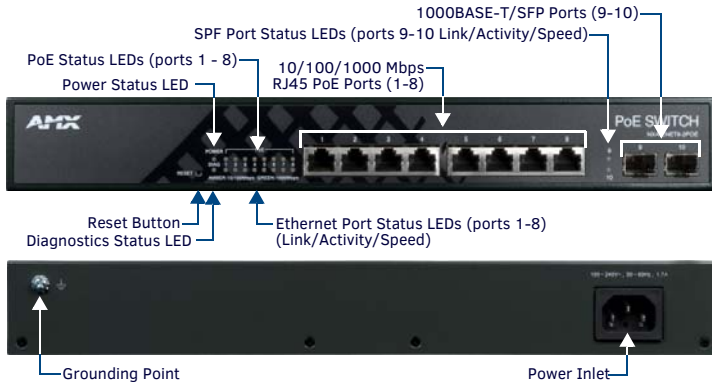

FIG. 1 NXA-ENET8-2POE (FRONT AND REAR PANELS)

Specifications

NXA-ENET8-2POE HARDWARE SPECIFICATIONS

Features	• IGMP snooping v1/v2/v3 • IPv6 support • 802.1Q VLAN support • 802.1X Port and MAC-based authentication • IEEE 802.1p CoS support • In-band Management: Web, or SNMP manager
Performance	• Switching Capability: 20 Gbps (aggregate bandwidth) • Packet Buffer Size: 1 MB • Switching Database: 8K MAC Address Table • Flash: 8 MB • Forwarding Mode: Store-and-forward • Throughput: Wire speed • Flow Control: Full Duplex: IEEE 802.3x, Half Duplex: Back pressure
Standards	• IEEE 802.3-2005 • Ethernet, Fast Ethernet, Gigabit Ethernet • Full-duplex flow control • Link Aggregation Control Protocol • IEEE802.3at Power-over-Ethernet • ISO/IEC 8802-3
Physical Ports:	• 8 10/100/1000BASE-T RJ-45 PoE ports • 2 Gigabit Ethernet SFP slots (dual speed 100/1000BASE-X)
LEDs	• System: PWR, DIAG, PoE • Port: Status (Link, Speed, Activity)
Network Interface	
Ports 1-8:	RJ-45 connector, auto MDI/MDI-X: • 10BASE-T: RJ-45 (100-ohm, UTP cable; Cat 3 or better) • 100BASE-TX: RJ-45 (100-ohm, UTP cable; Cat 5 or better) • 1000BASE-T: RJ-45 (100-ohm, UTP cable; Cat 5, 5e or better) Maximum cable length - 100 m (328 ft)
Ports 9-10:	SFP transceiver slots: 100BASE-FX, 1000BASE-SX,1000BASE-LX, 1000BASE-LH, 1000BASE-T The maximum length for fiber optic cable operating at Gigabit speed will depend on the fiber type. See the 1000 MBPS Gigabit Ethernet Collision Domain section in the NXA-ENET8-2POE Operation/Reference Guide for details.
PoE (IEEE 802.3at Power over Ethernet)	
Max output power:	Up to 30 W per port, within the total PoE power budget
Total PoE budget:	75 W
Voltage:	Maximum current: 1.7A
PoE Output Voltage:	48 V DC

NXA-ENET8-2POE HARDWARE SPECIFICATIONS (CONT.)

Power Requirements:	
Power Consumption	• 75 Watts for PoE power (Max from AC inlet) • 20 Watts for system power
Voltage:	• 100-240V • 50-60Hz • 1.5 A
Current:	• 1.5 A @ 110 VAC • 0.75 A @ 220 VAC
Power Supply	• AC Power: 100 to 240 V, 50-60 Hz, 0.7A • Power Supply: Internal, auto-ranging transformer: 100 to 240 VAC, 50 to 60 Hz • Power Consumption: 100 Watts • Maximum Current: 1.7A @ 100 VAC
Physical	
Size (W x D x H)	33 x 20.4 x 4.3 cm (12.99 x 8.03 x 1.69 in.)
Weight	2.2 kg (4.85 lbs)
Environmental	
Temperature:	• Standard Operating: 0°C to 50°C (32°F to 122°F) • Non-Operating (Storage): -40°C to 70°C (-40°F to 158°F)
Humidity	10% to 90% (non-condensing)
Compliances	• W FCC Part 15 Class A • IC CISPR 22 Class A • CE EN 55022 Class A and EN 55024 • LVD EN 60950-1 • CB Scheme IEC 60950-1 • CSA 22.2 NO 60950-1
Included Accessories	• Four adhesive foot pads • Grounding screw • Two brackets and eight screws • Power Cord
Other AMX Equipment:	• NXA-WAP1000 - 802.11a/b/g/n Wireless Access Point (FG2255-51/53) • NXA-WAPZD1100 - Wireless LAN ZoneDirector (FG2255-75, FG2255-54K – 60K)

Installation

Selecting a Site

The site should:
- Be at the center of all the devices you want to link and near a power outlet.
- Be able to maintain its temperature within 0° to 50°C (32° to 122°F) and its humidity within 10% to 90%, non-condensing
- Provide adequate space (approximately two inches) on all sides for proper air flow
- Be accessible for installing, cabling and maintaining the devices
- Allow the status LEDs to be clearly visible

Make sure twisted-pair cable is always routed away from power lines, fluorescent lighting fixtures and other sources of electrical interference, such as radios and transmitters.

Make sure that the unit is connected to a separate grounded power outlet that provides 100 to 240 VAC, 50 to 60 Hz, is within 2 m (6.6 feet) of each device and is powered from an independent circuit breaker. As with any equipment, using a filter or surge suppressor is recommended.

Ethernet Cabling

To ensure proper operation when installing the NXA-ENET8-2POE into a network, make sure that the current cables are suitable for 10BASE-T, 100BASE-TX, or 1000BASE-T operation. Check the following criteria against the current installation of your network:
- Cable type: Un-shielded twisted pair (UTP) or shielded twisted pair (STP) cables with RJ-45 connectors; Category 3 or better for 10BASE-T, Category 5 or better for 100BASE-TX, and Category 5, 5e, or 6 for 1000BASE-T.
- Protection from radio frequency interference emissions
- Electrical surge suppression
- Separation of electrical wires (switch related or other) and electromagnetic fields from data based network wiring
- Safe connections with no damaged cables, connectors or shields

Mounting

The NXA-ENET8-2POE can be mounted in a standard 19-inch equipment rack or on a desktop or shelf. Mounting instructions for each type of site follow (see reverse).

Rack Mounting

Before rack mounting the NXA-ENET8-2POE, pay particular attention to the following factors:
- **Temperature**: Check that the rack environment temperature (within a rack assembly) is within the specified operating temperature range (see the *Specifications* table).
- **Mechanical Loading**: Do not place any equipment on top of the rack-mounted unit.
- **Circuit Overloading**: Be sure that the supply circuit to the rack assembly is not overloaded.
- **Grounding**: Rack-mounted equipment should be properly grounded. Particular attention should be given to supply connections other than direct connections to the mains (FIG. 2).

Attach an insulated grounding wire with a metal screw, to the marked Grounding Point

Terminate the wire in an earthed grounding point

FIG. 2 GROUNDING

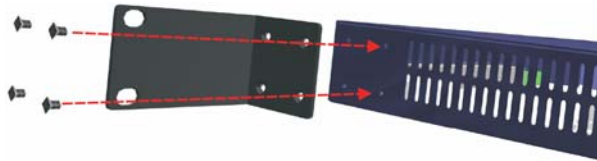1. Attach the brackets to the device using the screws provided (FIG. 3):

FIG. 3 ATTACHING THE BRACKETS

2. Mount the device in the rack, using four rack-mounting screws (not provided).
   Be sure to secure the lower rack-mounting screws first to prevent the brackets being bent by the weight of the switch (FIG. 4):

FIG. 4 INSTALLING THE NXA-ENET8-2POE IN A RACK

3. If installing a single switch only, refer to the *Connecting To a Power Source* section.
4. If installing multiple switches, mount them in the rack, one below the other.

Desktop or Shelf Mounting

1. Attach the four adhesive feet to the bottom of the first switch.
2. Set the device on a flat surface near an AC power source, making sure there are at least two inches of space on all sides for proper air flow.
3. If installing a single switch only, refer to the *Connecting To a Power Source* section.
4. If installing multiple switches, attach four adhesive feet to each one. Place each device squarely on top of the one below.

Connecting To a Power Source

1. Insert the power cable plug directly into the AC Power Inlet on the rear panel.
2. Plug the other end of the cable into a grounded, 3-pin, AC power source.
   Note: *For international use, you may need to change the AC line cord. You must use a line cord set that has been approved for the wall socket type in your country.*
3. Check the front-panel LEDs as the device is powered on to be sure the Power LED is on green. If not, check that the power cable is correctly plugged in.

Connecting Network Devices

The NXA-ENET8-2POE is designed to be connected to 10, 100, or 1000 Mbps network cards in PCs and servers, as well as to other switches and hubs. It may also be connected to remote devices using optional 1000BASE-SX, 1000BASELX, 1000BASE-LH, or 100BASE-FX SFP transceivers.

Twisted-Pair Devices

Each device requires an un-shielded twisted-pair (UTP) cable with RJ-45 connectors at both ends. Use Category 5, 5e, or 6 cable for 1000BASE-T connections, Category 5 or better for 100BASE-TX connections, and Category 3 or better for 10BASE-T connections.

Power-Over Ethernet Connections

The NXA-ENET8-2POE automatically detects a PoE-compliant device by its authenticated PoE signature and senses its required load before turning on DC power to the port. This detection mechanism prevents damage to other network equipment that is not PoE compliant.

Note: PoE connections work with all existing Category 3, 4, 5, 5e, or 6 network cabling, including patch cables and patch-panels, outlets, and other connecting hardware, without requiring modification.

- The NXA-ENET8-2POE delivers power to a device using the wire pairs in UTP or STP cable (RJ-45 pins 1, 2, 3, and 6). The switch can provide up to 34.2 W of power continuously on each of the eight RJ-45 ports. If a device tries to draw more than 34.2 W from a port, an overload condition occurs and the port disables the power.
- The NXA-ENET8-2POE controls the power and data on a port independently. Power can be requested from a device that already has a data link to the switch.
- Also, the NXA-ENET8-2POE can supply power to a device even if the port's data connection has been disabled. The power on a port is continuously monitored by the NXA-ENET8-2POE and it will be turned off as soon as a device connection is removed.

Cabling Guidelines

The RJ-45 ports on the NXA-ENET8-2POE supports automatic MDI/MDI-X pinout configuration, so you can use standard straight-through twisted-pair cables to connect to any other network device (PCs, servers, switches, routers, or hubs). See the *NXA-ENET8-2POE Operation/Reference Guide* for further information on cabling.

Note: Do not plug a phone jack connector into an RJ-45 port. This will damage the switch. Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards.

Connecting to PCs, Servers, Hubs and Switches

1. Connect one end of a twisted-pair cable segment to the NXA-ENET8-2POE's RJ-45 connector.
2. If the device is a network card and the switches are in the wiring closet, connect the other end of the cable segment to a modular wall outlet that is connected to the wiring closet.
   Otherwise, connect the other end of the cable segment directly to an available port on the switch.
   Make sure each twisted pair cable does not exceed 100 meters (328 ft) in length.
3. As each connection is made, the Link LED (on the switch) corresponding to each port will turn on (green or amber) to indicate that the connection is valid.

Cables and Pinouts

Twisted-Pair Cable Assignments

For 10/100BASE-TX connections, a twisted-pair cable must have two pairs of wires. For 1000BASE-T connections the twisted-pair cable must have four pairs of wires. Each wire pair is identified by two different colors.

For example, one wire might be green and the other, green with white stripes. Also, an RJ-45 connector must be attached to both ends of the cable. FIG. 5 illustrates how the pins on the RJ-45 connector are numbered.
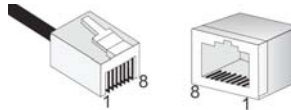
FIG. 5 RJ-45 CONNECTOR

Note: Be sure to hold the connectors in the same orientation when attaching the wires to the pins.

Auto-Negotiation / MDI-X Support

Auto-negotiation MDI/MDIX means that every port on the switch will automatically detect the Ethernet cable type being used (straight-through or crossover) and adjust to make a link over that cable. The NXA-ENET8-2POE supports MDI-X on all ports. Therefore either cable type can be used.

Note: Follow TIA-568B straight-through cabling standards.

10/100BASE-TX Pin Assignments

Use un-shielded twisted-pair (UTP) or shielded twisted-pair (STP) cable for RJ-45 connections: 100-ohm Category 3 or better cable for 10 Mbps connections.

Note: Be sure that the length of any twisted-pair connection does not exceed 100 meters (328 feet).

Using the Web Console

The NXA-ENET8-2POE provides an embedded HTTP web agent. Using a web browser you can configure the switch and view statistics to monitor network activity. The Web Console can be accessed by any computer on the network using a standard web browser (Internet Explorer 5.0, Netscape 6.2, Mozilla Firefox 2.0.0.0, or more recent versions).

Default Login Information

Default IP Address

The default IP Address for the NXA-ENET8-2POE is: **192.168.1.10**.

Default User Name and Password

To access the Web Console interface you must first enter a user name and password. The administrator has Read/Write access to all configuration parameters and statistics.

The default *User Name* and *Password* for the administrator is "**admin**."

Home Page

When your web browser connects with the switch's web agent, the home page is displayed as shown below. The home page displays the Main Menu on the left side of the screen and an image of the front panel on the right side. The Main Menu links are used to navigate to other menus, and display configuration parameters and statistics.

FIG. 6 WEB CONSOLE - HOME PAGE

Refer to the *NXA-ENET8-2POE Operation/Reference Guide* for instructions on using the Web Console to configure the switch. The *Operation/Reference Guide* also provides detailed instructions on using the Web Console to monitor the switch as well as perform diagnostics and maintenance.

Additional Documentation

Refer to the *NXA-ENET8-2POE Operation/Reference Guide* for additional installation and cabling details (including fiber optic cable), as well as detailed Compliance and Safety information.