Quick Start Guide

NXB-APW-1000 AutoPatch TCP/IP Interface

Overview

The NXB-APW-1000 (FG1010-78-01) is a TCP/IP interface module, which allows for BCS (Basic Control Structure, AMX AutoPatch's ASCII command protocol) tunneling over IP via an Ethernet connection to a NetLinx Central Controller (utilizing the AMX AutoPatch Duet module). The NXB-APW-1000 is connected directly to an AMX AutoPatch Matrix Switcher's RS-232 Control port (for a list of compatible products, see the "Specifications" table below). This *Quick Start Guide* contains complete installation information and specifications.

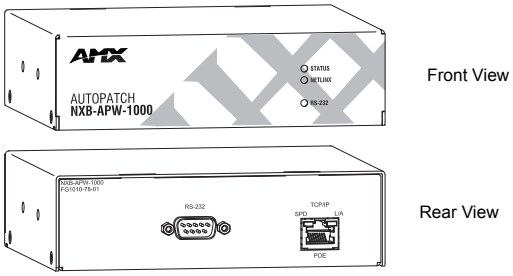

FIG. 1 NXB-APW-1000 (FG1010-78-01)

Compatibility Note: *The NXB-APW-1000 must be connected to one of the compatible AMX AutoPatch Matrix Switchers listed in the "Specifications" table below.*

Specifications

NXB-APW-1000 Specifications	
Front Panel Components	• Status LED (green): Solid green during bootup; blinks green when bootup is successful. • NetLinx LED (green): Blinking green at 5-second intervals indicates a connection has been established between the NetLinx Master and the NXB-APW-1000. • RS-232 LED (amber): Solid amber indicates a connection has been established between the NXB-APW-1000 and the matrix switcher.
Rear Panel Connectors	• RS-232 port • TCP/IP port: 10/100 Ethernet with PoE. SPD (Speed) LED – illuminates green when the connection speed is 100 Mbps; turns off when the speed is 10 Mbps. L/A (Link/Activity) LED – illuminates amber when the Ethernet cables are connected and terminated correctly.
Power Requirements	• PoE powered* – no local power supply needed • IEEE 802.3af Compliant
Operating Temperature	32 F to 104 F (0 C to 40 C)
Relative Humidity	5% to 85% non-condensing
Dimensions	5.15 in. (13.08 cm) depth 4.35 in. (11.05 cm) width 1.66 in. (4.22 cm) height
Weight / Shipping Weight	Approximately 1.42 lb. (0.64 kg) / 2.75 lb. (1.25 kg)
Compatible AMX AutoPatch Matrix Switchers	Epica-128, Epica-256, Epica DG, Epica DGX 16, Epica DGX 32, Epica DGX 144, Modula, Modula CatPro, Octaire, Optima, Optima SD, Precis DSP, and Precis SD
Approvals	CE, RoHs

* A PoE (Power over Ethernet) Injector, PS-POE-AF (FG423-80), is provided for the unit.

Important: *To avoid damage to the electronic equipment, installation must be performed in an ESD safe environment.*

Module Installation

System Setup

In a typical system setup, the NXB-APW-1000 could be installed between a NetLinx Master and an AMX AutoPatch Matrix Switcher and pass commands to the matrix switcher via a null modem serial cable (FIG. 2). After installation is complete, information on configuring the module starts in the section to the right and directions for establishing communication with the NetLinx Master are on the next page.

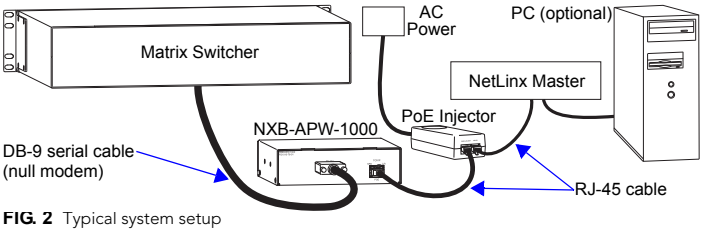

FIG. 2 Typical system setup

Mounting Options (Rack Trays & Mounting Brackets)

The unit is an AMX AutoPatch V Style Module. For details on the four versatile mounting kit options for V Style modules (3 unit tray, tray with fill plates, surface mount, and pole mount), see **www.amx.com**.

Power over Ethernet (PoE)

The AMX PoE Injector (PS-POE-AF) is a self-contained PoE power supply that delivers both power and data to any PoE-equipped device (such as the NXB-APW-1000) by "injecting" DC power through a Cat5 Ethernet cable. The PoE Injector is placed between the NXB-APW-1000 and the NetLinx Master (FIG. 2).

The NXB-APW-1000 uses standard Cat5/Cat6 cable via the TCP/IP port for PoE power.

Note: *The NXB-APW-1000 can be placed up to approximately 330 feet (100 m) from the nearest PoE Injector.*

Attaching Connectors

Important: *Do not apply power to the PoE Injector until cabling is complete (see Step 8 below).*

To attach connectors to the NXB-APW-1000:

1. Attach a null modem serial cable to the NXB-APW-1000's RS-232 (DB-9) port.

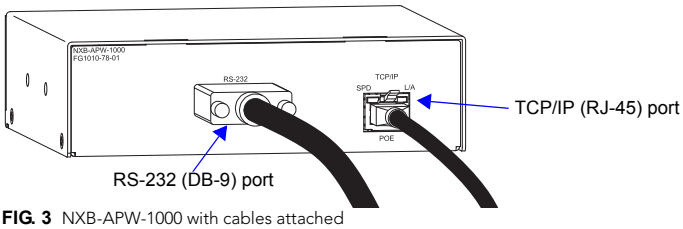

FIG. 3 NXB-APW-1000 with cables attached

2. Attach the other end of the serial cable to the Control (DB-9) port on the matrix switcher (see the matrix switcher's documentation for DB-9 pinout information).
3. Attach the first RJ-45 cable to the NXB-APW-1000 module's TCP/IP (RJ-45) port.
4. Attach the other end of the first RJ-45 cable to the PWR LAN-OUT (RJ-45) port on the PoE Injector.
5. Attach the second RJ-45 cable to the LAN-IN (RJ-45) connector on the PoE Injector.
6. Attach the other end of the second RJ-45 cable to the NetLinx Master.
7. Optional – Connect the NetLinx Master to a PC.
8. Apply power to the PoE Injector.
9. On the NXB-APW-1000, check the LEDs on the front and the LEDs on the RJ-45 connector on the rear for normal functioning (see below).
10. Follow the instructions for accessing Zero-Config information in the NetLinx Studio WebConsole (second column on the next page). Make note of the IP address for the NXB-APW-100.
11. Launch a web browser on your PC. In the address bar, type the module's IP address and press Enter.

LED Indicators

The LEDs on the RJ-45 connector (TCP/IP port) indicate the following:

- SPD (Speed) – When the LED is green, the connection speed is 100 Mbps; when the LED is off, the connection speed is 10 Mbps.
- L/A (Link/Activity) – When the LED is amber, the RJ-45 cable is connected and terminated correctly.

The LEDs on the front of the NXB-APW-1000 indicate the following:

- Status – Solid green during bootup; blinks green when bootup is successful.
- NetLinx – Blinking green at 5-second intervals indicates a connection has been established between the NXB-APW-1000 and the NetLinx Master.
- RS-232 – Solid amber indicates a connection has been established between the NXB-APW-1000 and the matrix switcher.

Configuration via TCP/IP Interface

NXB-APW-1000 modules have a TCP/IP interface that allows you to make various configuration settings via a web browser on any PC. The interface has two drop down menus, IP Control and Admin. In general when you make changes, click Accept and then click Reboot, which reboots the NXB-AP-1000.

IP Control Menu

The IP Control menu has two options: Home, the default (FIG 5) and Configuration (FIG. 4). From the **Configuration page** you can configure the IP Bridge settings.

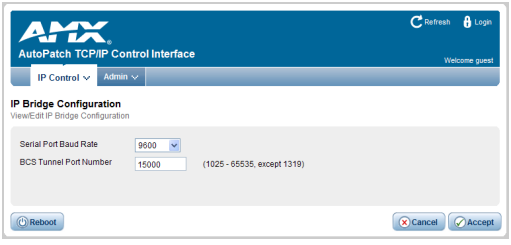

FIG. 4 IP Control menu – IP Bridge Configuration page

The **Home page** provides information on the system's VMs (virtual matrices), the hardware device, and device discovery. If the attached device does not support Device Discovery, configuration information will not display (the BCS tunnel is still operational).

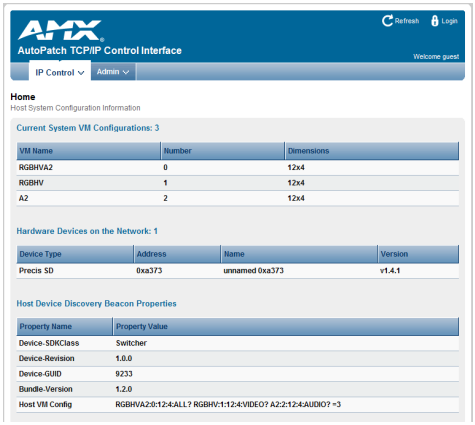

FIG. 5 IP Control menu – Home page

Admin Menu

Click on an option in the Admin drop-down menu to access each of the following pages.

The **Device Configuration page** has two tabs. Selecting the **Device Configuration tab** allows you to edit the device number.

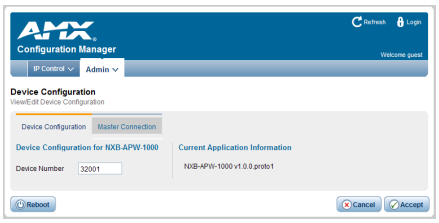

FIG. 6 Admin menu – Device Configuration page – Device Configuration tab

You can reach the **Master Connection page** directly from the Admin menu or from the **Master Connection tab** on the Device Configuration page. You can then select the connection mode and enter mode and authentication settings.

Important: *Do not change the default Master Port Number assignment of 1319.*

Note: *Whether the security profile is set to Secure or DoD (see "Enable DoD Security Mode" in the right hand column), three consecutive login failures will cause a 15 minute lockout for the specified user account.*

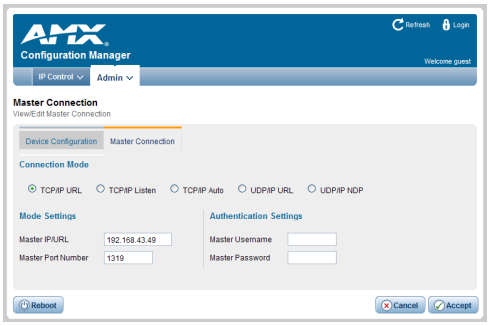

FIG. 7 Admin menu – Master Connection page – Master Connection tab

Pages for **Security Settings**, **IP Settings**, and **Port Settings** are also accessed from the Admin menu and allows you to enter and edit IP settings and to enable different ports.

Important: *To enable DHCP in order for the zero-configuration client (e.g., Bonjour for Windows) to detect the NXB-APW-1000 on the network, select IP Settings from the Admin menu and check DHCP.*

The last option in the Admin menu takes you to the **Clock Manager page**, which allows you to set time settings. Network Time must be selected before the Daylight Savings or NIST Servers tabs are available.

Accessing Zero-Config Information in the NetLinx WebConsole

NetLinx Studio version 3.0 (or higher) features a "Zero-Config" tab in the Workspace Window. This tab provides Zero-Config networking functionality within NetLinx Studio. Refer to the NetLinx Studio online help for details on using Zero-Config.

To determine the IP address – you can access the module via the Zero-Config feature in NetLinx Studio. The following directions assume: the NXB-APW-1000 is connected to the same NetLinx Master that NetLinx Studio is configured to connect to, and that all those devices are on the same network.

To access the NXB-APW-1000 via Zero-Config:

1. In NetLinx Studio (v3.0 or higher), left-click the Zero-Config tab; then right-click in the Workspace to access the Zero-Config shortcut menu.
2. Select Refresh Zero-Config List to generate an initial listing of all Zero-Config devices that have been detected.
3. Click the plus symbol (+) to expand any device in the Zero-config list. The device's current IP Address is listed below the device name.
4. Double-click on the desired NXB-APW-1000 to open the TCP/IP interface.

Enable DoD Security Mode

Important: *When the DoD Security mode is "on," a BCS tunnel is available; however, the web interface is unavailable.*

To enable the DoD Security mode:

1. Insert one end of an RJ-45 cable into a network card on a PC and the other end into the TCP/IP port on the NXB-AP-1000.
2. Open an SSH terminal emulator (e.g., PuTTY); connect to the NXB-AP-1000 module's IP address.
3. Type `set security profile`. The prompt appears with the current setting and options.
4. Type `2` and press enter.
5. Type `reboot` and press enter.

Important: *When the module is in the DoD Security mode, the user name changes to* `administrator` *and the password to* `Amx1234!` *(both are case sensitive). To change them, connect over SSH, enter* `security setup`*, and follow the menus.*

To disable the DoD Security mode:

1. Repeat all of the steps for enabling the DoD Security mode, entering `0` on Step 4.

Important: *When the module is taken out of the DoD Security mode, the user name and password will not change back to previous settings but remain as* `administrator` *and* `Amx1234!` *or as whatever their values were changed to after the module was put into the DoD Security mode.*

Firmware Upgrades

Firmware upgrades are handled via NetLinx Studio using .KIT files.

Before You Start

- ❑ Verify you have the latest version of NetLinx Studio on your PC. Use the Web Update option in NetLinx Studio's Help menu to obtain the latest version, or go to **www.amx.com** and log in as a Dealer to download the latest version.
- ❑ Verify that the NetLinx master and the NXB-APW-1000 are on the same network.
- ❑ Verify that the NetLinx Master is powered up.
- ❑ Determine the Device Number assigned to the NXB-APW-1000. The device number can be viewed/edited in the NXB-APW-1000 Configuration Manager - Device Configuration page.
- ❑ Launch NetLinx Studio and open the Online Device Tree.

Tip: *Place .KIT files in a local drive for speedy throughput.*

To send firmware upgrade files to the NXB-APW-1000:

1. Select Tools > Firmware Transfers > Send to NetLinx Device.
2. Click the Browse (...) button to navigate to the target directory.
3. From the Files list, select the appropriate .KIT file.
4. Enter the Device and System ID numbers for the NXB-APW-1000 module in the Device and System text boxes (by default the device number is 0).
5. Review the File, Connection, Address, and Target Device information.
6. Click the Send button.

NetLinx Studio transfers the .KIT files and then sends a command to the module to reboot, after which the NXB-APW-1000 goes through the upgrade process.

- During the process, the Status LED blinks and the module stays offline.
- Once the upgrade is complete, the Status LED stops blinking and the module comes online.

Caution: *If for any reason the .KIT file transfer fails, retry until transfer is successful. Do not reboot the module or change connections until transfer is complete. Failure to complete the transfer successfully may require factory repair of the NXB-APW-1000.*

Additional Documentation

- ❑ For additional information on NetLinx Studio, see the *NetLinx Integrated Controllers WebConsole & Programming Guide* at **www.amx.com**.
- ❑ For BCS command information, see the *Instruction Manual – BCS Basic Control Structure Protocol* on the *AMX AutoPatch CD* or at **www.amx.com**.

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