

Overview

All Encoders and Decoders of the SVSI N1122A/N1222A/N1133A/N1233A MPC (Minimum Proprietary Compression) products feature input and output scaling, serial, balanced audio, HDMI video connection, and Power-over-Ethernet (PoE). Some models also offer 1G SFP support for uncompressed networked AV video and USB control inputs for KVM keyboard and mouse over IP.

Depending on the model, the P1 port on the rear of the unit is either an SFP (N1133A/N1233A) or an RJ45 (N1122A/N1222A) network connection. FIG. 1 shows the fully-equipped model, complete with SFP and USB support. These devices are all AES67 compatible, which enables high-performance audio-over-IP streaming interoperability.

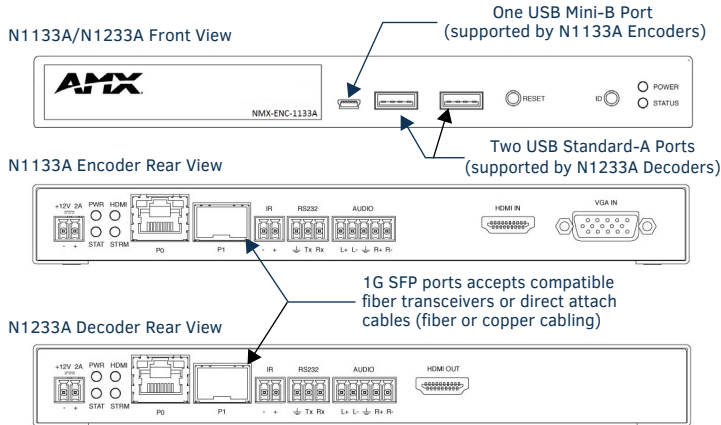


FIG. 1 N1133A/N1233A USB AND SFP PORTS

NOTE: The SFP port supports 1000BASE-X or 1000BASE-T connections only.

Basic Installation Guidelines

Connections	Options
Power:	<p>PoE: Connect the unit's P0 port to an active, PoE-enabled network switch</p> <p>External power supply: If not using PoE for power, connect a 12V regulated power supply (part number N9312) to the unit's two-pin terminal block plug connector labeled +12V 2A.</p>
Network:	<p>PoE: If using PoE to power the unit, you should already have a network connection.</p> <p>External power: If not using PoE, connect the P0 port to the network using an Ethernet cable, or connect the P1 port to the network with the appropriate cable (fiber transceiver or direct-attach cable is required for SFP connections).</p> <p>Daisy-chain configuration: Once network connection is established to one unit, you can daisy-chain additional units by connecting Ethernet cables between devices using their P0 and/or P1 ports. Keep in mind that the number of units supported in this configuration is limited by bandwidth (total aggregate streams must be less than 1 Gb/s).</p> <p>NOTE: PoE power is only supplied to the unit connected directly to the network. All other units in the daisy-chain must have an external power supply.</p>
Video:	<p>N1122A/N1133A MPC Encoders</p> <ul style="list-style-type: none"> For video encoding of a digital source, connect the source to the Encoder's HDMI IN port using a video cable with an HDMI connector (or adapter). For video encoding of an analog source, connect the source to the Encoder's VGA IN port using a video cable with a VGA connector (or component adapter). <p>N1222A/N1233A MPC Decoders</p> <ul style="list-style-type: none"> For video decoding, connect a digital display to the Decoder's HDMI OUT port using a video cable with an HDMI connector (or adapter).
Audio:	<p>N1122A/N1133A MPC Encoders</p> <ul style="list-style-type: none"> For audio encoding, connect a line level analog audio source to the Audio input terminal block plug connector, or Use the embedded audio from the video source, or Enable AES67 Audio to transmit an AES67 audio stream. <p>N1222A/N1233A MPC Decoders</p> <ul style="list-style-type: none"> For analog audio decoding, connect a line level analog audio device to the Audio output terminal block plug connector, or Send embedded digital audio (embedded in the HDMI connection) to a monitor's speakers, or Enable AES67 Audio to receive an AES67 audio stream.

Product Specifications

Models Available:	<p>NMX-ENC-N1122A Encoders - two RJ45 network ports</p> <p>NMX-ENC-N1133A Encoders - 1G SFP port, RJ45 port; three USB ports</p> <p>NMX-DEC-N1222A Decoders - two RJ45 network ports</p> <p>NMX-DEC-N1233A Decoders - 1G SFP port and RJ45 port; three USB ports</p>
Power Requirements:	<p>PoE: Can be powered via a PoE switch or other equipment with a PoE source. Conforms to IEEE 802.3af Class 3 (802.3at Type 1).</p> <p>External power supply: 2.0 Amp @ 12 Volts DC; 100-240 Volts AC power supply; Part number N9312 (sold separately).</p>
Dimensions (HWD):	1.05" x 7.888" x 5.5" (2.67cm x 20.04cm x 14cm)
Weight:	1.55 lbs (0.7kg)
Certifications:	FCC, CE, and NRTL
Environmental:	<p>Temperature: 32° to 104°F (0° to 40°C)</p> <p>Humidity: 10% to 90% RH (non-condensing)</p>
Mounting Options:	Stand alone, surface mount, wall mount, or rack mount.*

NOTE: *Mounting wings (part number N9101) required for surface and wall mounting. Rack shelf (part number N9102) or card cage (part number N9206) required for rack mounting. Shelf accommodates two side-by-side N-Series Encoders and Decoders. Card cage accommodates up to six N-Series Encoder and Decoder cards (mix and match any series).

Establishing Connection

N1000 MPC devices are shipped with DHCP as their default IP mode. The IP address is assigned automatically based on the network DHCP server. If no DHCP server is found, the unit will use Auto IP mode instead (with a default IP address of 169.254.xxx.xxx).

Before using your N1000 MPC unit, it must be configured using the free N-Able device management software. However, you will not be able to configure units until they are in the same subnet as the host computer.

The sample steps below show how the required changes (to the host computer's IP settings) are made in a Windows environment.

Steps for IP address configuration:

- From the **Control Panel > Network and Internet** dialog box, select **Network and Sharing Center**.
- Select **Change adapter settings**.
- Select the wired interface connected to your AV network.
- Click the **Properties** button.
- Scroll down in the list to the **Internet Protocol Version 4 (TCP/IPv4)** option. Highlight it and click the **Properties** button.
- Enable the **Use the following IP address** option, and enter the static IP address provided to you by your network administrator.

NOTE: If the computer does not need Internet access, you can simply enter a unique 169.254.xxx.xxx IP address with a 255.255.0.0 Subnet mask. Please contact your network administrator if you are unsure of how to configure the existing interface. If the computer has a statically-assigned IP address, click on the **Advanced** button. Then click **Add** to enter a unique 169.254.xxx.xxx address with a subnet of 255.255.0.0.

Steps for auto discovering devices on the network:

- Use the host computer to download and install the latest version of N-Able: PC version - <http://www.amx.com/products/N-ABLE-PC.asp> Mac version - <http://www.amx.com/products/N-ABLE-MAC.asp>
- Attach your N1000 MPC unit(s) to the layer-3 network switch.
- Disable the wireless adapter on your computer (it must be hard-wired to the switch).
- Connect the host computer to the layer-3 network switch.
- Open the N-Able application.

If all devices do not appear automatically, click the **Auto Discover** button on the **Unit Management** tab. This issues a broadcast command that will discover all units even if they are not in the same IP subnet.

Logging in Using N-Able Software

Once the host IP address is configured properly, you can view all discovered units using the N-Able software. Access the N1000 MPC units from the following tabs:

- Unit Management** tab - N1000 Encoder/Decoder is listed in the **Type** field.
- Video Matrix** tab - N1000 MPC units are found on the **N1000** sub-tab of this screen.

Double-click the unit's name (in one of the lists mentioned above) to view its **Settings** page. If prompted, enter **admin** and **password** for the default username and password. Once logged in, you can change the username and password (using the options on the unit's **Settings** page). From this page, you can access any of the main pages of the unit's GUI.

NOTE: If you would like for N-Able to support auto-login to your units, make sure N-Able's Device Auto-login settings match the unit's username and password (by selecting N-Able > Settings from the N-Able tool bar).

NOTE: N1000 MPC units force HTTPS connections, so your web browser may give you a security warning. N-Able on Windows will ask you to download OpenSSL for Windows to connect HTTPS.

Basic KVM Setup (N1133A/N1233A models only)

The N1133A Encoders and N1233A Decoders are KVM-capable. By default, USB connections are enabled and configured to follow video switching. Follow these steps for basic KVM setup. To learn about some of the more advanced KVM capabilities, see the section *Advanced KVM Setup (with added security features)*.

1. On the N1133A Encoder, connect the USB Mini-B port (designated by a laptop icon) to the computer to be controlled.
2. Connect the computer's video output to the Encoder's **HDMI IN** port.
3. On the N1233A Decoder, connect the **HDMI OUT** to the display.
4. Connect a USB keyboard and mouse to the Decoder's USB Standard-A ports (they can be plugged into either port).

NOTE: For wireless devices, simply plug the wireless signal receivers into these ports. For keyboard and mouse combos (with a single connection) use the keyboard port.

5. Using N-Able, click the **Unit Management** tab.
6. Click the **Auto Discover** button to discover your new devices (if you have not already done so).
7. Once discovery is complete (and you see the new units listed in N-Able), click the **Video Matrix** tab.
8. On the matrix, click the common cell for the desired Encoder/Decoder streaming combination. See the screen shot below for an example.
9. Click the **Take** button to make the change to your matrix. The radio button turns green to indicate the connection was successful.

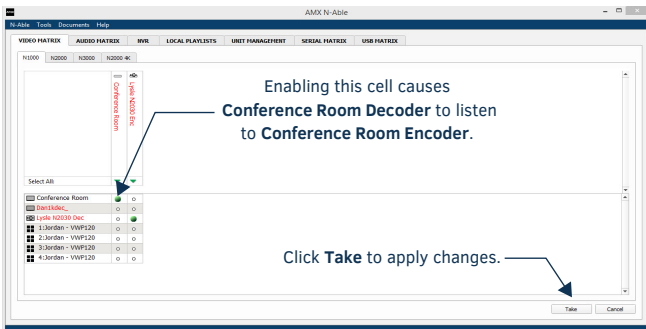


FIG. 2 CREATING STREAMING COMBINATIONS

Video/USB Switching Options

USB Follows Video: By default, units can be switched using N-Able without modifying the configuration. When you switch video streams (using the matrix as shown above) the USB functionality will follow the video.

Independent USB Switching: Use N-Able's **USB Matrix** tab to switch USB control (without affecting video).

Independent Video Switching: To switch video streams *without* affecting USB control, first select **N-Able > Settings** from N-Able's main menu. When the **N-Able Settings** dialog box is displayed, disable the **USB follows Video switching for KVM units**. Now you can use the **Video Matrix** to switch video streams only.

Advanced KVM Functionality: To have the ability to use KVM hotkeys for switching, **KVM Advanced Settings** must be enabled on the individual unit (select **KVM** from the top of the unit's web interface). The next section discusses these settings in more detail.

Advanced KVM Setup (with added security features)

You can configure devices for more advanced KVM operation on the Encoder and Decoder **KVM** pages. To access these pages, double-click the unit's name in the matrix and click **KVM** at the top of the **Settings** page (see below).

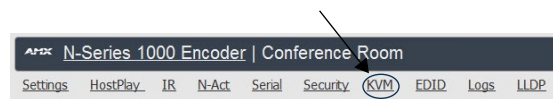


FIG. 3 SELECTING THE KVM PAGE

NOTE: Many of these options are easier to manage in N-Able's KVM Wizard (especially in large configurations). Select **Tools > KVM Wizard** from the N-Able main menu to access the wizard.

The following table describes some of the more advanced functionality. It is important to note that many of these options only appear on the **KVM** page when **USB** is enabled as well as **KVM Advanced Settings**.

Options	Descriptions
Permission Levels	This feature determines which Decoders can communicate with which Encoders. A Decoder must have a permission level that is <i>equal to or greater than</i> the Encoder in order for communication to be successful.
KVM Encoders table	Use the KVM Encoders table (on the Decoder's KVM page) to: <ul style="list-style-type: none"> • Let the Decoder know the Encoder passwords it needs to establish communication. • Assign Encoder hotkeys. • Add/remove Encoders from the Decoder's list.
Passwords	By default, KVM streams are encrypted with a common password. You can change the password on the Settings page of the Encoder. If you change Encoder passwords, you will need to supply the new information to the Decoders to allow communication to continue. A Decoder only receives password information for the Encoders on the network that have been associated with that Decoder as mentioned previously.
Hotkeys	To use hotkeys for easy switching, enable KVM Directory Screen Enable on the Decoder's KVM page. You can now access the KVM Directory Screen at any time by pressing the <Scr Lk> button twice on the keyboard connected to the Decoder. This screen displays all Encoders associated with that Decoder (and their corresponding hotkey).
Import and export KVM CSV files.	Multiple Encoders and Decoders can be configured from a single CSV file (which is generated using the KVM Wizard in N-Able). Once all changes are made, upload the file to each unit using its KVM page. Click the Choose File button, browse to the CSV file you exported from the wizard, and click the Upload button.

Warning! You must assign KVM passwords to your Encoders and Decoders (as well as change the default login password from **admin/password**) in order for your system to be secure.

Troubleshooting Guidelines

Problem	Possible Solution
Video is not transmitting.	<ul style="list-style-type: none"> • Verify that the Encoder TX Enable setting is turned on. (Encoders ship from the factory with their video output turned off by default.)
Local Play graphic is displayed.	<ul style="list-style-type: none"> • Verify Decoder is assigned to view a valid stream in the N-Able matrix. • Verify Decoder is currently in live play mode (black text on matrix view). • Verify network is properly configured and set up. If needed, connect Encoder directly to Decoder to verify network issues.
Host Play graphic is displayed.	<ul style="list-style-type: none"> • Verify Encoder is in live play mode (black text in matrix). • Verify source is attached and is outputting a valid signal (HDMI LED on Encoder is on).
Unsupported Resolution graphic is displayed.	<ul style="list-style-type: none"> • Change source resolution to a valid resolution (try 720p60). • Verify cabling is correct.
Copy Protected Content screen is displayed.	<ul style="list-style-type: none"> • Contact technical support.
Black screen/no graphic is displayed.	<ul style="list-style-type: none"> • Set Decoder to local play. If the local play graphic does not appear, check the display input settings and cabling. • If local play appears, set Decoder to live play and verify network is configured properly.
No audio is detected.	<ul style="list-style-type: none"> • If there is no audio on all Decoders, verify audio settings are correct on Encoder. • If there is no audio on a single Decoder, verify audio settings are correct on Decoder.

Please contact SVSI technical support at svsisupport@harman.com or **256.461.7143 (x9900)** for assistance with any installation issues.



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3000 RESEARCH DRIVE, RICHARDSON, TX 75082 AMX.com | 800.222.0193 | 469.624.8000 | +1.469.624.7400 | fax 469.624.7153
AMX (UK) LTD, AMX by HARMAN - Unit C, Auster Road, Clifton Moor, York, YO30 4GD United Kingdom • +44 1904-343-100 • www.amx.com/eu/

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