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Quick Start Guide
AutoPatch Modula Distribution Matrix

Overview

Because the Modula Distribution Matrix is available in various sizes and board configurations, the illustrations in this guide may differ from the model(s) you purchased. The Modula Instruction Manual contains complete documentation for this product (including individual board specifications); see the *AMX AutoPatch Software & Documentation CD* or visit **www.amx.com**.

General Specifications

Specifications	
Approvals	CE, UL, cUL
AC Power	100 - 240 VAC single phase (50 - 60 Hz) 3.3 A @ 115 VAC max. 1.6 A @ 230 VAC max.
Power Consumption 3 RU	260 W (max.), 100 W (typical) per enclosure
Power Consumption 4 RU (depending on model)	520 W (max.), 255 W (typical) per enclosure 260 W (max.), 105 W (typical) per enclosure
Operational Temperature	32° - 110° F (0° - 43° C)
Humidity	0 to 90% non-condensing
Dimensions 3 RU	Approximately 17.0 in. (43.18 cm) depth 18.8 in. (47.7 cm) width with mounting ears 17.4 in. (44.2 cm) width without mounting ears 5.3 in. (13.4 cm) height
Dimensions 4 RU	Approximately 17.0 in. (43.18 cm) depth 18.8 in. (47.7 cm) width with mounting ears 17.4 in. (44.2 cm) width without mounting ears 7.0 in. (17.8 cm) height
Weight	Approx. 22 - 24 lb. (9.98 - 10.88 kg) per enclosure

Installation

ESD Warning: *Avoid ESD (Electrostatic Discharge) damage to sensitive components; be sure you and the enclosure(s) are properly grounded before touching any internal materials.*

Rack Mounting

To rack mount a Modula enclosure:

1. Attach the rack ears as shown in FIG. 1 (screws provided).
2. Install in a rack leaving a minimum of one empty rack unit above and below (required); three empty rack units above and below are recommended.

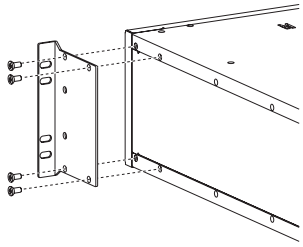


FIG. 1 Attach rack ears to side of enclosure

Linking Multiple Enclosures (if applicable)

If the system has multiple enclosures, an "AutoPatch Distribution Matrix Linking Quick Start Guide" has been provided. Link the enclosures according to the guide.

Attaching Input & Output Cables/Wires

For testing purposes, attach just the first two sources and destinations according to the **Connector Guide.** *Follow the guide exactly; the system is programmed to operate based on the guide.*

CatPro or Cat-5 Boards – RJ-45

If the system includes CatPro or Cat-5 boards, information on attaching connectors and setting up systems is provided in the Modula Instruction Manual.

Video Boards – BNC

Video BNC connectors are used for standard video, HV sync, Y/c, component, wideband, SD-SDI, and HD-SDI.

Component signals (e.g., Y/Pb/Pr or RGsB) require more than one BNC connection. The example in FIG. 2 (top of next column) shows three BNC cable connectors attached for routing a three-component signal as Input 1.

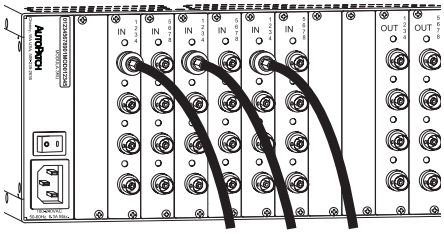


FIG. 2 Three BNC connectors are required for a three-component signal

S-Video Boards

S-Video boards are equipped with locking connectors, which lock into AutoPatch S-Video cables. Standard S-Video connectors may be used, but will not lock.

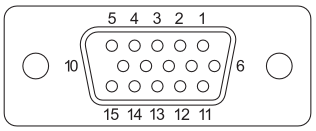
To fasten a locking S-Video connector: hold the connector at a slight angle to the right while pushing in or pull back on the connector housing while pushing the connector in.



FIG. 3 Pull back on connector housing while pushing in

RGBHV/HD-15 Boards

RGBHV/HD-15 boards use the pinouts in FIG. 4 for HD-15 connectors.



Input (VESA DDC Compliant)

1. Red	6. Red GND	11. ID Bit
2. Green	7. Green GND	12. DDC SDA
3. Blue	8. BlueGND	13. Horizontal Sync
4. ID Bit	9. +5 V in DDC	14. Vertical Sync
5. GND	10. GND	15. DDC SCL

Output

1. Red	6. Red GND	11. ID Bit
2. Green	7. Green GND	12. ID Bit
3. Blue	8. BlueGND	13. Horizontal Sync
4. ID Bit	9. +5 V out DDC	14. Vertical Sync
5. GND	10. GND	15. ID Bit

FIG. 4 HD-15 input and output board connector pinouts

Note: *Power draw not to exceed 50 mA per port.*

Stereo Audio Boards – 5-Term

Stereo audio boards with 5-position terminal block connectors can be wired for balanced (differential) or unbalanced (single-ended) audio (see FIG. 5).

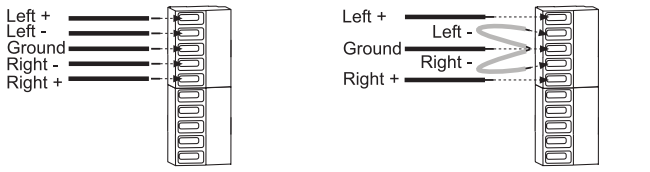


FIG. 5 Balanced audio Unbalanced audio

Note: *When using a shielded twisted-pair cable, connect the shield (ground) at one end only (recommend receiving end) to minimize low frequency noise (see FIG. 6).*

Source and destination devices will require either balanced or unbalanced connections. More than one of the options shown in FIG. 6 can be used in the same system.

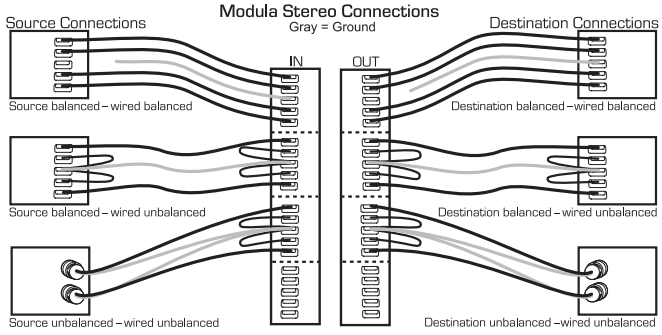


FIG. 6 Options for source-to-Modula-to-destination 5-Term wiring

Mono Audio Boards – 3-Term

Mono audio boards with 3-position terminal block connectors can be wired for balanced (differential) or unbalanced (single-ended) audio.

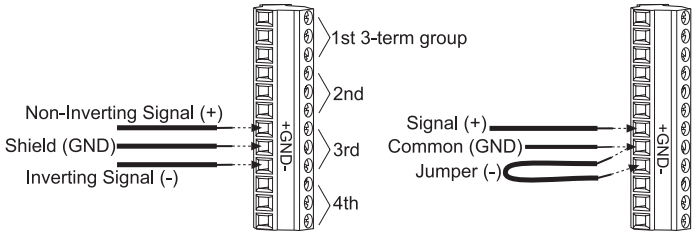


FIG. 7 Balanced audio Unbalanced audio

Note: *When using a shielded twisted-pair cable, connect the shield (ground) at one end only (recommend receiving end) to minimize low frequency noise (see FIG. 8).*

Source and destination devices require either balanced or unbalanced connections. More than one of the options shown in FIG. 8 can be used in the same system.

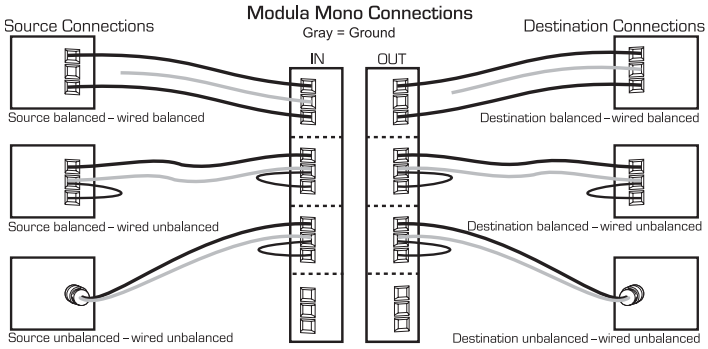


FIG. 8 Options for source-to-Modula-to-destination 3-Term wiring

Establishing Serial Control (if applicable)

The Modula can be controlled by attaching an external control device/system to either serial port (Port 1 or Port 2) or to the XNNet connector (Link 2), which uses AutoPatch XNNet protocol for AutoPatch devices.

Serial Control (PCs & third-party controllers)

Use the pinout in FIG. 9 when connecting a PC to the Modula serial port.

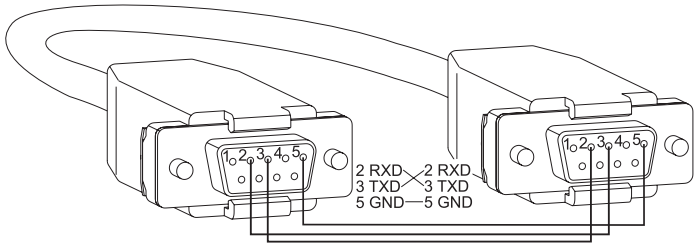


FIG. 9 RS-232 cable pin diagram

Important: *For non-linked enclosures, attach a 50 ohm termination connector to the unused network BNC connector on the CPU (connector supplied).*

To establish external serial control:

1. Plug the null modem cable into the serial port on the enclosure (see FIG. 10).
2. Plug the other end of cable into the serial port on the serial controller/device.
3. Open serial communication software and set port settings to match the Modula default settings (baud = 9600, data bits = 8, stop bit = 1, parity and flow control = none).

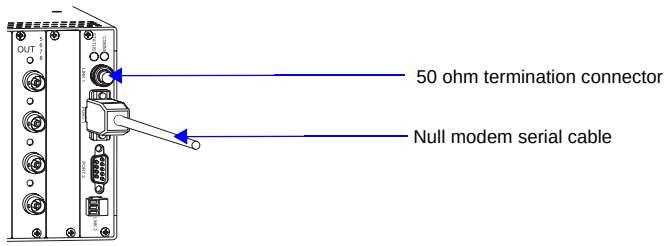


FIG. 10 Attach null modem serial cable

XNNet Control (AutoPatch remote control panels, SBCs, & SDUs)

The XNNet connector (Link 2) is at the bottom of the CPU.

Communication Cable Specifications:

- Two-conductor, 20 AWG, 7/28 strand cable with a drain wire or shield, such as Alpha 2412C (customer supplied)
- Maximum length of cable: 1,000 ft. (304.8 m) total, including linked panels

On large control networks, termination may be required on the last linked device; see device documentation for termination information.

Important: *For non-linked enclosures, attach a 50 ohm termination connector to the unused network BNC connector on the CPU (connector supplied).*

To establish external XNNet control:

1. Attach XNNet link cable to XNNet device according to the device instructions.
2. Unplug the Link 2 (XNNet) connector on the Modula and loosen the screws.
3. Insert XNNet link cable wires according to Fig. 11 (either wire can be inserted in either outside slot).
4. Tighten screws and plug in connector.

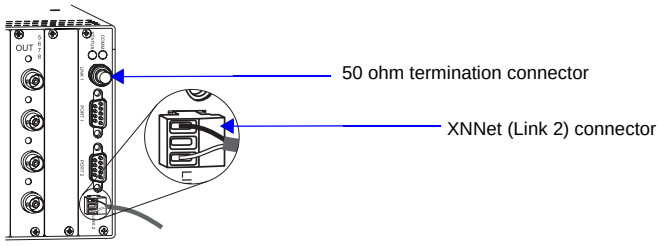


FIG. 11 Insert wires into XNNet connector (Link 2)

Applying Power & Control Startup

Important: *We recommend attaching all power cords to a surge protector and/or an AC line conditioner.*

To apply power:

1. Attach power cord(s) and plug into power source (turn on power source if necessary). Press the "**I**" side of the enclosure's power switch. The Power Indicator on the front of the enclosure illuminates.
2. Apply power to any external devices (remote control panels, SBCs, etc.) and then to the source and destination devices.

Startup Control Options

- **Control Panel (front or remote)** – the LED on the panel illuminates and displays the menu screen.
- **NetLinx® or Duet Compatible Devices** – see the specific controller device documentation.
- **APControl 3.0** – install and open the program. Follow the setup wizard, which will discover the system's configuration information and open the APControl Launchbar.
- **APWeb** – connect the APWeb Module (see the APWeb Module documentation).
- **BCS Commands** (HyperTerminal) – when power is applied, a short splash screen appears.

Completing the Installation

To complete the installation:

1. Execute a test switch that routes Input 1 to Output 2.
   Control Panel – see the control panel's Quick Start Guide.
   NetLinx® or Duet Compatible Devices – see the specific controller device documentation.
   APControl 3.0 – from the APControl Launchbar menu, select Views / Cross-Bar and click on the crosspoint for Input 1 / Output 2.
   APWeb – see the APWeb (Interface) documentation.
   BCS Commands (HyperTerminal) – enter CL# I1O2T (# = a level on the **Connector Guide**) into the terminal emulation program (routes Input 1 to Output 2). When CL# I1O2T appears, the switch is successful.
2. Attach remaining source and destination devices according to the **Connector Guide**.

Additional Information Covered in Modula Instruction Manual

See the instruction manual on the CD or at www.amx.com for the following:

- Setting up global and local presets
- Customizing channel names
- Enabling Vertical Interval Sync (VIS) board(s)

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