



Instruction Manual

Octaire

Distribution Matrix



AMX Limited Warranty and Disclaimer

This Limited Warranty and Disclaimer extends only to products purchased directly from AMX or an AMX Authorized Partner which include AMX Dealers, Distributors, VIP's or other AMX authorized entity.

AMX warrants its products to be free of defects in material and workmanship under normal use for three (3) years from the date of purchase, with the following exceptions:

- LCD Panels are warranted for three (3) years, except for the display and touch overlay components are warranted for a period of one (1) year.
- Disk drive mechanisms, pan/tilt heads, power supplies are warranted for a period of one (1) year.
- AMX lighting products are guaranteed to switch on and off any load that is properly connected to our lighting products, as long as the AMX lighting products are under warranty. AMX also guarantees the control of dimmable loads that are properly connected to our lighting products. The dimming performance or quality there of is not guaranteed, due to the random combinations of dimmers, lamps and ballasts or transformers.
- AMX software is warranted for a period of ninety (90) days.
- Batteries and incandescent lamps are not covered under the warranty.
- AMX AutoPatch Epica, Modula, Modula Series 4, Modula Cat Pro Series and 8Y-3000 product models will be free of defects in materials and manufacture at the time of sale and will remain in good working order for a period of three (3) years following the date of the original sales invoice from AMX. The three-year warranty period will automatically be extended to the life of the product (Limited Lifetime Warranty). The life of the product extends until five (5) years after AMX ceases manufacturing the product model. The Limited Lifetime Warranty applies to products in their original installation only. If a product is moved to a different installation, the Limited Lifetime Warranty will no longer apply, and the product warranty will instead be the three (3) year Limited Warranty.

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Note: The complete Warranty is at www.amx.com.

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ESD Warning



To avoid ESD (Electrostatic Discharge) damage to sensitive components, make sure you are properly grounded before touching any internal materials.

When working with any equipment manufactured with electronic devices, proper ESD grounding procedures must be followed to ensure people, products, and tools are as free of static charges as possible. Grounding straps, conductive smocks, and conductive work mats are specifically designed for this purpose.

Anyone performing field maintenance on AMX AutoPatch equipment should use an appropriate ESD field service kit complete with at least a dissipative work mat with a ground cord and a UL listed adjustable wrist strap with another ground cord. These items should not be manufactured locally, since they are generally composed of highly resistive conductive materials to safely drain static charges, without increasing an electrocution risk in the event of an accident. ESD protective equipment can be obtained from 3M™, Desco®, Richmond Technology®, Plastic Systems®, and other such vendors.

Important Safety Information and Instructions

When using and installing your AMX AutoPatch product, adhere to the following basic safety precautions. For more information about operating, installing, or servicing your AMX AutoPatch product, see your product documentation.

- Read and understand all instructions before using and installing AMX AutoPatch products.
- Use the correct voltage range for your AMX AutoPatch product.
- There are no user serviceable parts inside an AMX AutoPatch product; service should only be done by qualified personnel.
- If you see smoke or smell a strange odor coming from your AMX AutoPatch product, turn it off immediately and call technical support.
- For products with multiple power supplies in each unit, make sure all power supplies are turned on simultaneously.
- Use surge protectors and/or AC line conditioners when powering AMX AutoPatch products.
- Only use a fuse(s) with the correct fuse rating in your enclosure.
- Make sure the power outlet is close to the product and easily accessible.
- Make sure the product is on or attached to a stable surface.
- Turn off equipment before linking pieces together, unless otherwise specified in that product's documentation.
- For safety and signal integrity, use a grounded external power source and a grounded power connector.
- To avoid shock or potential ESD (Electrostatic Discharge) damage to equipment, make sure you are properly grounded before touching components inside an AMX AutoPatch product.

Information et directives de sécurité importantes

Veillez vous conformer aux directives de sécurité ci-dessous lorsque vous installez et utilisez votre appareil AMX AutoPatch. Pour de plus amples renseignements au sujet de l'installation, du fonctionnement ou de la réparation de votre appareil AMX AutoPatch, veuillez consulter la documentation accompagnant l'appareil.

- Lisez attentivement toutes les directives avant d'installer et d'utiliser les appareils AMX AutoPatch.
- Le voltage doit être approprié à l'appareil AMX AutoPatch.
- Les appareils AMX AutoPatch ne contiennent aucune pièce réparable par l'utilisateur; la réparation ne doit être effectuée que par du personnel qualifié.
- Si de la fumée ou une odeur étrange se dégagent d'un appareil AMX AutoPatch, fermez-le immédiatement et appelez le Service de soutien technique.
- Veillez à ce que tous les blocs d'alimentation des appareils dotés de blocs d'alimentation multiples dans chaque unité soient allumés simultanément.
- Servez-vous de protecteurs de surtension ou de conditionneurs de lignes à courant alternatif lorsque vous mettez les appareils AMX AutoPatch sous tension.
- Placez uniquement des fusibles de calibre exact dans les boîtiers.
- Veillez à ce que la prise de courant soit proche de l'appareil et facile d'accès.
- Veillez à ce que votre appareil AMX AutoPatch soit installé sur une surface stable ou qu'il y soit fermement maintenu.
- Fermez toutes les composantes de l'équipement avant de relier des pièces, à moins d'indication contraire fournie dans la documentation de l'appareil.
- Par mesure de sécurité et pour la qualité des signaux, servez-vous d'une source d'alimentation externe mise à la terre et d'un connect d'alimentation mis à la terre.
- Pour éviter les chocs ou les dommages éventuels causés à l'équipement par une décharge électrostatique, veillez à ce le dispositif soit bien relié à la terre avant de toucher les composantes se trouvant à l'intérieur d'un appareil AMX AutoPatch.

Notices

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Further, this publication and features described herein are subject to change without notice.

US FCC Notice

The United States Federal Communications Commission (in 47CFR 15.838) has specified that the following notice be brought to the attention of the users of this product.

Federal Communication Commission Radio Frequency Interference Statement:

“This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the booklet, How to Identify and Resolve Radio-TV Interference Problems, prepared by the Federal Communications Commission to be helpful.”

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock N. 004-000-00345-4.

Use shielded cables. To comply with FCC Class A requirement, all external data interface cables and adapters must be shielded.

Lithium Batteries Notice

Switzerland requires the following notice for products equipped with lithium batteries. This notice is not applicable for all AMX equipment.

Upon shipment of the products to Switzerland, the requirements of the most up-to-date Swiss Ordinance Annex 4.10 of SR 814.013 will be met by providing the necessary documents and annual reports relative to the disposal of the batteries to the Swiss Authorities.

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Ethernet[®] is a registered trademark of the Xerox Corporation.

Other products mentioned herein may be the trademarks of their respective owners.

Warnings and Cautions

This manual uses the following conventions and icons to draw attention to actions or conditions that could potentially cause problems with equipment or lead to personal risk.



ESD Warning: *The icon to the left indicates text regarding potential danger associated with the discharge of static electricity from an outside source (such as human hands) into an integrated circuit, often resulting in damage to the circuit.*



Warning: *The icon to the left indicates text that warns readers against actions or conditions that could cause potential injury to themselves.*



Caution: *The icon to the left indicates text that cautions readers against actions that could cause potential injury to the product or the possibility of serious inconvenience.*

Overview and General Specifications

The Octaire Distribution Matrix is a fixed system consisting of a single video or audio enclosure or multiple video enclosures with or without audio in a fixed input/output range. Because the Octaire is available in various fixed sizes, the illustrations in this manual may differ slightly from model(s) you purchased. These cost-effective, off-the-shelf units pack the same high-performance specifications as our other top lines.

Applicability Notice

In the following five tables, enclosures are designated as:

- STD – standard video
- UWB – ultra-wideband video
- SYNC – digital HV sync
- AUDIO – stereo audio

The designations for the video type are on labels on the rear of the enclosures. An explanation for the model numbers is provided in FIG. 1.

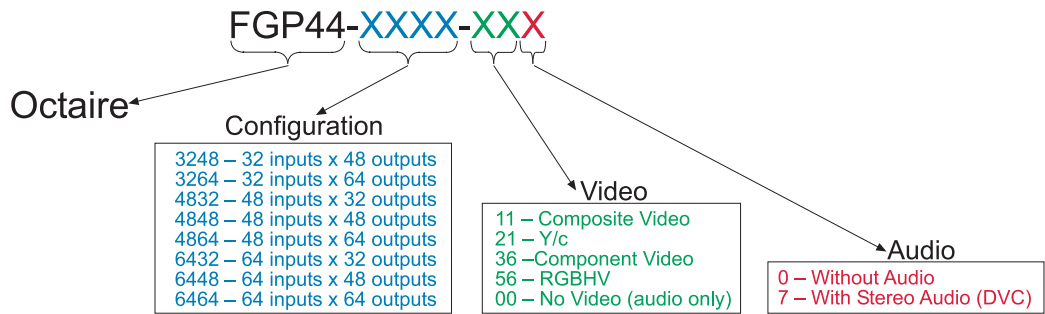


FIG. 1 Octaire model numbers

Composite Video and Composite Video+Stereo:

Model	Configuration	Description	# of Enclosures
FGP44-3248-110	32x48	Composite Video	1 STD
FGP44-3264-110	32x64	Composite Video	1 STD
FGP44-4832-110	48x32	Composite Video	1 STD
FGP44-4848-110	48x48	Composite Video	1 STD
FGP44-4864-110	48x64	Composite Video	1 STD
FGP44-6432-110	64x32	Composite Video	1 STD
FGP44-6448-110	64x48	Composite Video	1 STD
FGP44-6464-110	64x64	Composite Video	1 STD
FGP44-3248-117	32x48	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-3264-117	32x64	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-4832-117	48x32	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-4848-117	48x48	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-4864-117	48x64	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-6432-117	64x32	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-6448-117	64x48	Composite Video+Stereo	1 STD + 1 AUDIO
FGP44-6464-117	64x64	Composite Video+Stereo	1 STD + 1 AUDIO

Y/c and Y/c+Stereo:

Model	Configuration	Description	# of Enclosures
FGP44-3248-210	32x48	Y/c	2 STD
FGP44-3264-210	32x64	Y/c	2 STD
FGP44-4832-210	48x32	Y/c	2 STD
FGP44-4848-210	48x48	Y/c	2 STD
FGP44-4864-210	48x64	Y/c	2 STD
FGP44-6432-210	64x32	Y/c	2 STD
FGP44-6448-210	64x48	Y/c	2 STD
FGP44-6464-210	64x64	Y/c	2 STD
FGP44-3248-217	32x48	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-3264-217	32x64	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-4832-217	48x32	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-4848-217	48x48	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-4864-217	48x64	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-6432-217	64x32	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-6448-217	64x48	Y/c+Stereo	2 STD + 1 AUDIO
FGP44-6464-217	64x64	Y/c+Stereo	2 STD + 1 AUDIO

Component and Component+Stereo:

Model	Configuration	Description	# of Enclosures
FGP44-3248-360	32x48	Component	3 UWB
FGP44-3264-360	32x64	Component	3 UWB
FGP44-4832-360	48x32	Component	3 UWB
FGP44-4848-360	48x48	Component	3 UWB
FGP44-4864-360	48x64	Component	3 UWB
FGP44-6432-360	64x32	Component	3 UWB
FGP44-6448-360	64x48	Component	3 UWB
FGP44-6464-360	64x64	Component	3 UWB
FGP44-3248-367	32x48	Component+Stereo	3 UWB + 1 Audio
FGP44-3264-367	32x64	Component+Stereo	3 UWB + 1 Audio
FGP44-4832-367	48x32	Component+Stereo	3 UWB + 1 Audio
FGP44-4848-367	48x48	Component+Stereo	3 UWB + 1 Audio
FGP44-4864-367	48x64	Component+Stereo	3 UWB + 1 Audio
FGP44-6432-367	64x32	Component+Stereo	3 UWB + 1 Audio
FGP44-6448-367	64x48	Component+Stereo	3 UWB + 1 Audio
FGP44-6464-367	64x64	Component+Stereo	3 UWB + 1 Audio

RGBHV and RGBHV+Stereo:

Model	Configuration	Description	# of Enclosures
FGP44-3248-560	32x48	RGBHV	3 UWB + 2 SYNC
FGP44-3264-560	32x64	RGBHV	3 UWB + 2 SYNC
FGP44-4832-560	48x32	RGBHV	3 UWB + 2 SYNC
FGP44-4848-560	48x48	RGBHV	3 UWB + 2 SYNC
FGP44-4864-560	48x64	RGBHV	3 UWB + 2 SYNC
FGP44-6432-560	64x32	RGBHV	3 UWB + 2 SYNC
FGP44-6448-560	64x48	RGBHV	3 UWB + 2 SYNC
FGP44-6464-560	64x64	RGBHV	3 UWB + 2 SYNC
FGP44-3248-567	32x48	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-3264-567	32x64	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-4832-567	48x32	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-4848-567	48x48	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-4864-567	48x64	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-6432-567	64x32	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-6448-567	64x48	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO
FGP44-6464-567	64x64	RGBHV+Stereo	3 UWB + 2 SYNC + 1 AUDIO

Stereo:

Model	Configuration	Description	# of Enclosures
FGP44-3248-007	32x48	Stereo	1 AUDIO
FGP44-3264-007	32x64	Stereo	1 AUDIO
FGP44-4832-007	48x32	Stereo	1 AUDIO
FGP44-4848-007	48x48	Stereo	1 AUDIO
FGP44-4864-007	48x64	Stereo	1 AUDIO
FGP44-6432-007	64x32	Stereo	1 AUDIO
FGP44-6448-007	64x48	Stereo	1 AUDIO
FGP44-6464-007	64x64	Stereo	1 AUDIO

Product Notes

Octaire fixed matrix switchers are designed for large, analog, high performance applications. The configuration for an Octaire system (whether single enclosure or multi-enclosure) is set at the factory. Octaire 4 RU enclosures each route one signal type. Four enclosure types, each handling a single signal, support all of the system combinations listed in the previous tables.

Enclosures

- Standard video enclosure (quantity 1) – supports a composite video signal
- Standard video enclosures (quantity 2) – support a Y/c signal (Y in one and c in the other)
- Ultra-wideband enclosure (quantity 3) – supports a single component of a three-component (HDTV) signal
- Ultra-wideband enclosures (quantity 3) – support an “R,” “G,” or “B” component of an RGBHV signal
- Digital sync enclosures (quantity 2) – support an HV sync signal (H in one and V in the other)
- Audio enclosure (quantity 1) – supports a stereo audio signal

Because the video enclosures look identical, it is crucial that they are cabled according to the labels on the rear and the “Octaire AutoPatch Connector Guide” (see page 96), which is included in the shipment (also see “Linking Enclosures” on page 19).

Note: *On a multi-enclosure system, the primary enclosure is the one with a control panel (and a TCP/IP port) and is the point of control for the system.*

Octaire Features

- Ultra-flat response (bandwidth curve measured at a tight +/-3 dB)
- Ultra-wideband video bandwidth for UWB enclosures in any routing state, including fully loaded – averaging 600 MHz, while maintaining 500 MHz at the ultra-flat response minimum
- High bandwidth-linearity and low crosstalk
- Detection, Assignment, and Configuration (DAC) firmware that automatically recognizes and configures each enclosure, sequences them, and generates a united, single feature solution
- Switch any input to any or all outputs in any combination and disconnect any or all outputs
- Breakaway to route video, audio, or audio-follow-video
- Global presets
- Vertical interval synchronization of video signals
- Dual power feeds and redundant power supplies
- Standard RS-232
- Service Access Spacing (twice the space between connectors) – making BNC cable connections easy
- Standard Warranty (see warranty at www.amx.com or on the *AMX AutoPatch CD*)
- 24-hour technical support

Octaire Control Features

In addition to the front control panel (standard with all Octaire systems), which is mounted on the primary enclosure, several control options are available. (The Octaire cannot be controlled with a remote control panel.) Multiple control methods can be used on the same system.

- The Octaire, which supports Device Discovery, is compatible with a number of AMX control devices. For control programming information, see the instruction manual for the specific interface.
- APControl 3.0 software (free with all systems)
- APWeb (TCP/IP control)
- Supports AMX AutoPatch’s simple BCS* (Basic Control Structure) serial control protocol
- Supports AMX AutoPatch’s XNNet protocol
- Supports third-party controllers

* BCS is sent as ASCII characters through the RS-232 port.

Important: *Device Discovery functionality (beacon response) will only function properly if the NetLinx master is connected to the RS-232 control port on the primary enclosure (the one with the control panel). The RS-232 ports on the secondary enclosures are intended for single enclosure diagnostic information and system firmware upgrades.*

Features and specifications described in this document are subject to change without notice.

Front View

A front control panel is standard with each system and is mounted on the primary enclosure. The panel is used for controlling the system's switches and system attributes. For complete control panel information, see the "Control Panel" chapter on page 43.

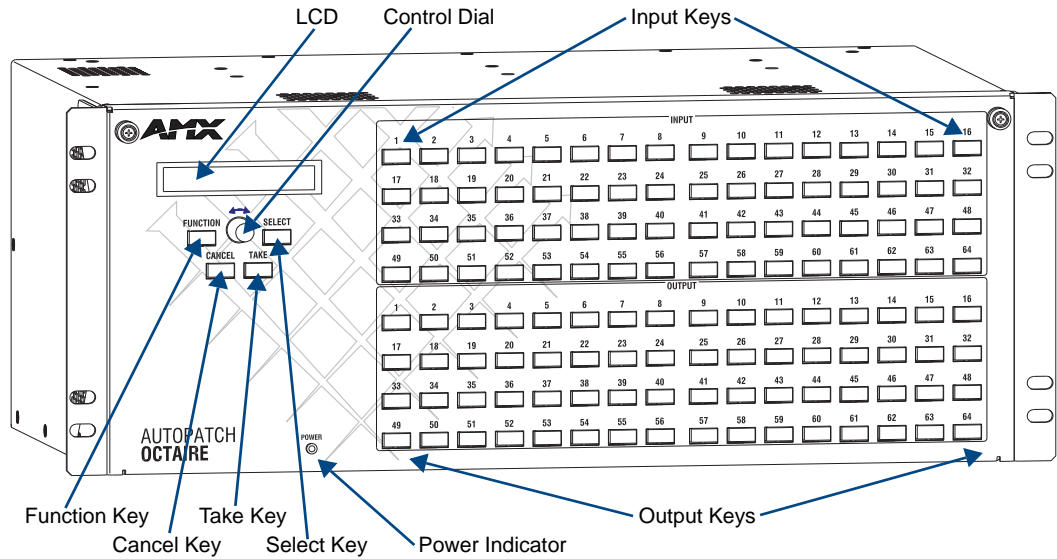


FIG. 2 Front view of 64x64 Octaire enclosure

Rear View

The enclosure's appearance, as viewed from the rear, will vary depending on the signal/connector types and the configuration size (which is also the main determinate of weight).

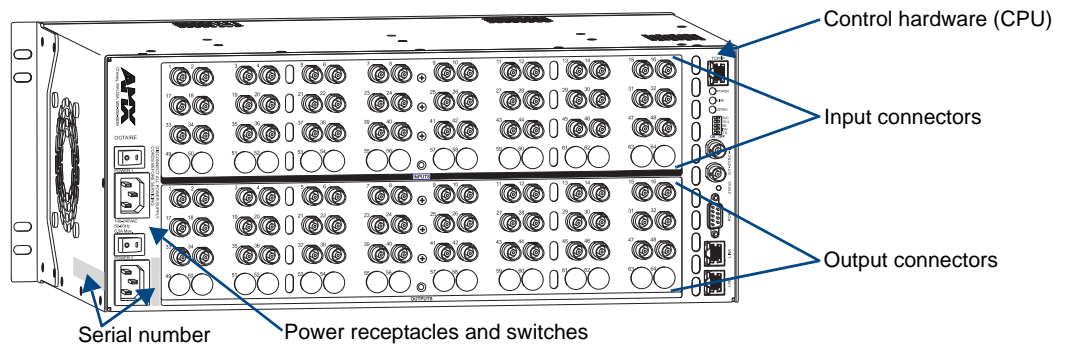


FIG. 3 Rear view of 48x48 Octaire video enclosure

Rear View Components

- Control hardware (CPU)
- Power receptacles with switches
- Serial number
- Input and output connectors

Control Hardware

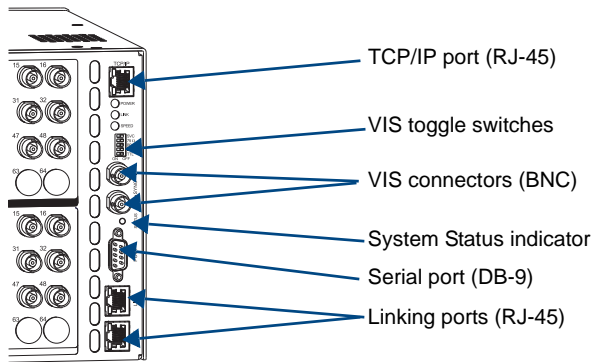


FIG. 4 Control hardware on primary enclosure

The control hardware (CPU) on the primary enclosure is on the right and includes the following:

- TCP/IP port (on primary enclosure only) – for connecting to an APWeb Server (page 35)
- Set of toggle switches – for setting the vertical interval sync parameters (page 33)
- Two BNC connectors – for linking vertical interval sync (page 32)
- System Status indicator – for system power and communication status (page 28)
- Serial port (DB-9) – for attaching an external control device to the primary enclosure (page 25)
- Two linking ports (RJ-45) – for linking multi-enclosure Octaire systems (page 19)

The hardware (CPU) on the secondary enclosure(s) is also on the right and includes the same items as the primary enclosure, except it does not have a TCP/IP port and LEDs. The serial port on secondary enclosures is intended for single enclosure diagnostic information and system firmware upgrades.

Power Receptacles and Switches

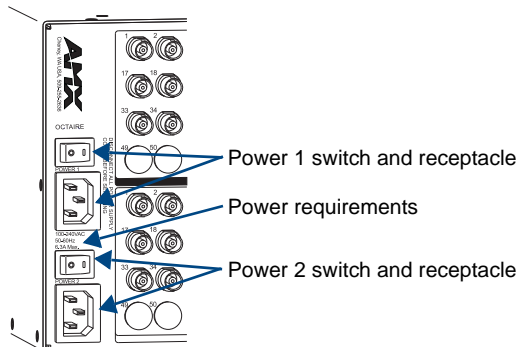


FIG. 5 Power supplies receptacles and switches

The Octaire has dual power connections for the redundant power supplies located on the left. Each power supply has a power receptacle with a switch and will accept all major international standard power sources. Two standard US power cords are provided for installations within the US. The maximum power specifications are located between the power receptacles. For additional information on the redundant power supplies, see page 27.

Serial Number

The serial number is located on the rear next to the power receptacles (FIG.3 on page 11).

We recommend recording the “FGP44-xxxx-xxx” system number (see page 7) and the serial number for each enclosure in the system in an easily accessible location.

Input and Output Connectors

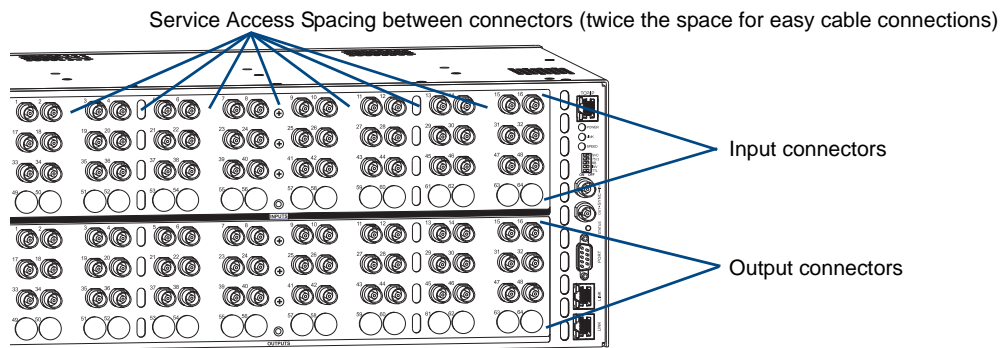


FIG. 6 Input and output connectors

Viewed from the rear of the enclosure, the connectors span the center from the power receptacles to the control area with the inputs on the top with the outputs directly below. Input and output connectors are the attachment points for source and destination devices that connect to the system. The rear of each enclosure is populated with connectors for a single signal type (for configuration sizes, see the “Applicability Notice” on page 7 through page 9). Inputs and outputs are numbered separately. The numbers are above each connector and read left to right, continuing on the next row of connectors. All video connectors are BNC, and audio connectors are 5-position terminal block. For systems containing video enclosures, we recommend installing a color-coded band representing the enclosure’s signal type on the first input BNC connector on each enclosure. A set of colored bands ships with the system; for the colored band to signal correspondence, see the table on page 22.

For cabling and wiring information for each signal type, see page 21.

For signal specifications, see page 39.

General Specifications

Specifications	
Approvals	CE, UL, cUL, RoHS
AC Power	100 VAC to 240 VAC single phase (50 Hz to 60 Hz) 3.3 A @ 115 VAC max. 1.6 A @ 230 VAC max.
Power Consumption (max.)	260 W per enclosure
Power Consumption (typical)	120 W per enclosure, fully loaded
Operational Temperature	32° F to 113° F (0° C to 45° C)
Thermal Dissipation (max.)	887 BTU/hour
Thermal Dissipation (typical)	409 BTU/hour, fully loaded enclosure
Humidity	0 to 90% non-condensing
Enclosure Dimensions	Approximately 12.0 in. (30.5 cm) depth (including connectors) 18.9 in. (48.0 cm) width with mounting ears 17.4 in. (44.2 cm) width without mounting ears 6.95 in. (17.65 cm) height, 4 RU
Weight	Approximately 20 lbs. (9.07 kg) per enclosure (depending on configuration) Approximately 24 lbs. (10.89 kg) packaged for shipping
MTBF	66,000 hours

External Control Options

Note: *The Octaire has a fixed configuration that was set at the factory.*

Octaire systems are controlled with either the control panel (see page 43) or externally with one of the following options:

AMX Control Devices

The Octaire, which supports Device Discovery, is compatible with a number of AMX control devices. For control programming information, see the instruction manual for the specific interface.

Control Software

Octaire systems can be controlled using AMX AutoPatch software:

- **APControl 3.0** – Control and scheduling
 - Uses serial port located on the primary enclosure's far right when viewed from the rear
 - Runs on a PC connected to the serial port
 - Download* from the *AMX AutoPatch CD*
- **APWeb Server** – Control, diagnostics, and third-party access
 - TCP/IP port located on primary enclosure's far right near the top when viewed from rear
 - Accessed through a TCP/IP interface such as a web browser (e.g., Internet Explorer)
 - Contact AMX regarding limitations and conditions for operating an Octaire on a company LAN (Local Area Network)

* If your AMX account has the required permissions, you can download APControl from **www.amx.com**.

BCS Serial Control Protocol

An Octaire system can be controlled with an external serial controller connected to the primary enclosure. AMX AutoPatch has developed a command language, BCS* (Basic Control Structure) protocol, for programming control operations and for diagnostic purposes.

- **External Serial Controllers** – Control using BCS protocol
 - Serial Control (sends and receives ASCII characters)
 - Uses serial port located on the primary enclosure's far right when viewed from the rear
 - Commands can be entered into a terminal emulation program on a PC connected to the serial port (such as Windows[®] HyperTerminal)

*For information on BCS commands, see the *BCS Protocol Instruction Manual* on the *AMX AutoPatch CD* or at **www.amx.com**.

Third-Party Controllers

A third-party controller can also be attached to an Octaire enclosure via the RS-232 serial port on the primary enclosure. If using a third-party controller, see the controller documentation for operating instructions.

Installation and Setup

Site Recommendations

When placing the enclosure, follow the recommendations and precautions in this section to reduce potential installation and operation hazards. For general specifications, see page 13; for individual signal specifications, see the “Signal Types and Specifications” chapter (see page 39).

Environment

- Choose a clean, dust free, (preferably) air-conditioned location.
- Avoid areas with direct sunlight, heat sources, or high levels of EMI (Electromagnetic Interference).

Chassis Accessibility

Make sure the front and rear panels of the enclosure are accessible, so that you can monitor the LED indicators. Leaving adequate clearance at the rear will also allow for easier cabling and service.

Power

The source’s electrical outlet should be installed near the router, easily accessible, and properly grounded. Power should come from a building branch circuit. We recommend that a second, independent branch be used for the second AC inlet feed to the enclosure (see page 27). Use a minimum breaker current rating of 30 A for 110 V or 15 A for 230 V.

To avoid an overload, note the power consumption rating of all the equipment connected to the circuit breaker before applying power.

General Hazard Precautions

These recommendations address potential hazards that are common to all installations:

Elevated Operating Temperature

The maximum rated ambient temperature for Octaire enclosures is 113° F (45° C).

All equipment should be installed in an environment compatible with the manufacturer’s maximum rated ambient temperature. In a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the ambient room temperature.



Caution: *To protect the equipment from overheating, do not operate in an area that exceeds 113° F (45° C) and follow the clearance recommendation below for adequate airflow.*

Airflow Restriction

Octaire enclosures are designed to adequately dissipate the heat they produce under normal operating conditions; however, this design is defeated when high heat-producing equipment is placed directly above or below an enclosure.



Caution: *To prevent overheating, avoid placing high heat-producing equipment directly above or below the enclosure. The system requires a minimum of one empty rack unit above and below (three empty rack units are recommended). Verify that the openings on the sides of the enclosure are not blocked and do not have restricted air flow.*

Mechanical (Rack) Loading

When installing equipment in a rack, distribute the weight to avoid uneven mechanical loading.

Circuit Overloading

When connecting the equipment to the supply circuits, be aware of the effect that overloading the circuits might have on over-current protection and supply wiring.

Reliable Earthing (Grounding)

Reliable earthing of rack-mounted equipment should be maintained. If you are not using a direct connection to the branch circuit (e.g., plugging into a power strip), pay particular attention to supply connections.

Note: *We recommend attaching all power cords to surge protectors and/or AC line conditioners (see page 27). After powering up the enclosure, apply power to the source and destination devices.*

Unpacking

The Octaire is shipped with one enclosure per shipping box. The invoice is sent separately; a packing list is attached to the outside of each box. Each box contains the following items:

- Enclosure
- 2 standard US power cords (if shipped within the US)
- Rack ears and screws
- Link cable provided with multi-enclosure systems
- Other enclosure products, as needed

The documentation in the first box includes:

- AMX AutoPatch Octaire Quick Start Guide
- AMX Octaire AutoPatch Connector Guide
- Control Panel Custom Label Kit (for inputs and outputs and for LCD Function Menu)
- Color rings for connectors to indicate type of video enclosure(s)
- AMX AutoPatch CD*

For orders comprising multiple enclosures, the shipping boxes are marked as “Chassis __ of __,” where the first blank is the box number and the second blank is the total number of boxes in the shipment.

Unpacking Tips

- Before fully unpacking the enclosure(s), *examine the shipping box(es) for any signs of damage*. If a box is partially crushed or any sides have been broken open, notify the shipping agency immediately and contact your AMX representative (see the warranty on the *AMX AutoPatch CD* or at **www.amx.com**).
- Once unpacking is complete, closely check the physical condition of the enclosure.
- Collect all documentation.

Note: *Please save the original shipping container and packing materials. AMX is not responsible for damage caused by insufficient packing during return shipment to the factory. Shipping boxes are available; contact your AMX representative for details.*

Rack Installation and System Setup

Octaire Distribution Matrix enclosures fit in a standard EIA 19 in. (48.26 cm) rack (rack ears are provided).

Important: *The system requires at least one empty rack unit above and below the enclosure to allow adequate airflow; three empty rack units are recommended.*

Required items for rack installation:

- Enclosure(s)
- Rack ears
- Standard EIA 19 in. (48.26 cm) rack
- Screwdriver
- Screws that fit your rack for mounting the enclosure(s)
- Power cords (2 per enclosure)
- Link cables (provided with multi-enclosure systems)
- Surge-protectors – recommended

Optional items for rack installation

- PC or laptop computer with a null modem cable (for communication with the Octaire via the RS-232 serial port on the primary enclosure)

Installation Recommendations

- Write the serial number for each enclosure (located on the rear next to the power receptacles) in an easily accessible location before installing the Octaire in a rack.
- Use earth-grounded power cords / system with the Octaire.
- Attach all power cords to surge protector(s) and/or AC line conditioner(s).
- Apply power to the Octaire enclosure(s) before applying power to its source and destination devices.

Installation Procedure

A flow chart showing the installation sequence is in FIG. 7. The procedure, which follows on page 18, provides general steps with references to detailed information found in later sections of the manual.

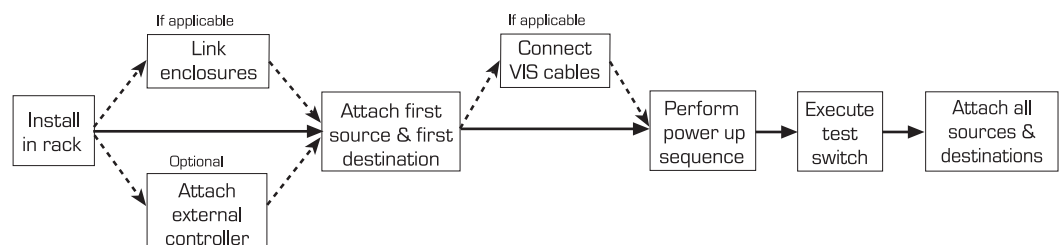


FIG. 7 Installation procedure



Caution: *To prevent overheating and airflow restriction, avoid placing high heat-producing equipment directly above or below the enclosure. The system requires a minimum of one empty rack unit above and below (three empty rack units are recommended). Verify that the openings on the sides of the enclosure are not blocked and do not have restricted air flow.*

To install and set up an Octaire system in a rack:

1. Attach rack ears per FIG. 8.

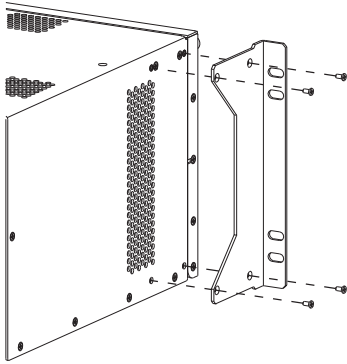


FIG. 8 Attach rack ears

2. Place the enclosure in the rack and attach front-mounting screws to hold it firmly in place (FIG. 9); repeat for any additional enclosures.

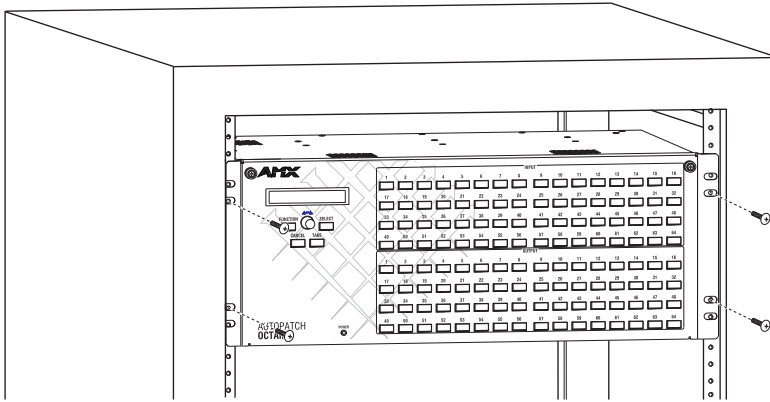


FIG. 9 Place enclosure(s) in rack and secure with screws

Tip: When placing enclosures, keep in mind that the optimal viewing angle for a control panel is eye level.

3. Multi-enclosure systems – Link the enclosures together; see “Linking Enclosures” on page 19.
4. Optional – Establish communication with an external control device/system; see “Attaching External Control” on page 24. For TCP/IP information, see “Connecting to the APWeb Server” on page 35.
5. Attach only the first source device and the first destination device; see “Attaching Inputs and Outputs” on page 21. Multiple BNC connectors attached to corresponding connectors on the enclosures designated on the “Octaire AutoPatch Connector Guide” (see page 96) are required for all video signals except composite.
Do not apply power to the source and destination devices until after the Octaire has power (Step 7).

Tip: Using lacer bars or some other type of cable management system lessens the strain from cable weight on the connectors and makes servicing the Octaire easier.

6. If applicable – Connect cables for vertical interval sync (VIS) signals; see “Cabling and Setup for Vertical Interval Sync” on page 32.
7. Apply power to the system according to the power-up procedure; see “Applying Power and Startup” on page 27.

Note: We recommend using surge protectors and/or AC line conditioners.

8. Execute a test switch to ensure the system is working properly; see “Executing a Test Switch” on page 30.
9. When the test switch works correctly, attach the remaining source and destination devices.

Additional Installation Options

Additional installation tasks may include the following:

- Setting a control panel password – See the “Control Panel Operations” chapter (page 62)
- Labeling inputs/outputs and LCD menu – See “Control Panel Operations” chapter (page 46)
- Creating global presets – See the *BCS Protocol Instruction Manual* on the *AMX AutoPatch CD* or at www.amx.com

Linking Enclosures

Important: An Octaire Distribution Matrix is a fixed system. Do not link an Octaire enclosure to another type of AMX AutoPatch enclosure or to another Octaire enclosure which is not part of its factory-defined system.

Linking enclosures in a multi-enclosure system allows control information to pass between them with the Link (RJ-45) ports providing consistent control speed.

In a multi-enclosure Octaire system, the enclosure with the control panel (referred to as the primary enclosure) receives control information (from the control panel or an external controller) and passes on relevant information to the other enclosures via the links as well as retrieving control requests for success/failure from each of them.



Caution: AMX AutoPatch systems can only be linked in their own isolated networks.

Link Cable Requirements

Octaire enclosures link directly to each other via the two Link ports (RJ-45) at the lower right using the crossover cables that are provided. (Straight-through cable can also be used for linking. If straight-through cable is used, use it consistently between all enclosures in the system.)

Crossover Cable Specifications

- Wiring – Wired to TIA / EIA-568-A on one end and TIA / EIA-568-B on the other end
- Length – Maximum length is 100 ft. (30.5 m)



Caution: Enclosures must be cabled correctly after linking. To ensure that you are attaching the correct signal cables to the correct enclosure, check the labels designating the signal type on the rear of the enclosure and the “Octaire AutoPatch Connector Guide” (see page 96).

Linking Two Octaire Enclosures:

Link two Octaire enclosures together via the Link (RJ-45) ports using the provided crossover cable.

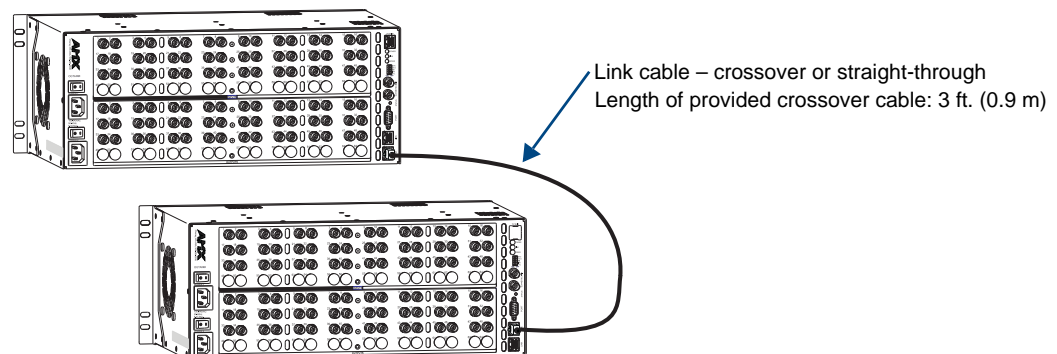


FIG. 10 Link two Octaire enclosures with the provided cable or up to 100 ft. (30.5 m) apart

To link two Octaire enclosures:

1. Insert one end of the crossover cable into the lower Link port on the primary enclosure (the one with the control panel).
2. Insert the other end of the crossover cable into the upper Link port on the secondary enclosure.

When power is applied, the Link connector LEDs illuminate indicating communication status between enclosures (FIG. 12 on page 21).

Linking Three or More Octaire Enclosures

In a multi-enclosure system, link the Octaire enclosures together in a daisy chain via the Link (RJ-45) ports using the provided crossover cables.

Each video enclosure has a label that designates the signal type on the rear:

- STD (standard video) – supports composite signals or the Y or c components of Y/c signals
- UWB (ultra-wideband) – supports three-component signals or the R, G, or B components of RGBHV signals
- SYNC (digital sync) – supports the H or V components of RGBHV signals

Start with the primary enclosure (the one with the control panel) for the first video component type (e.g., R for RGBHV). Secondary enclosures of the same signal type (e.g., G and B or H and V) are interchangeable. Link the remaining enclosures according to the “Octaire AutoPatch Connector Guide” (see page 96) and to the signal type labels on the rear of the enclosures. The audio enclosure is always last.

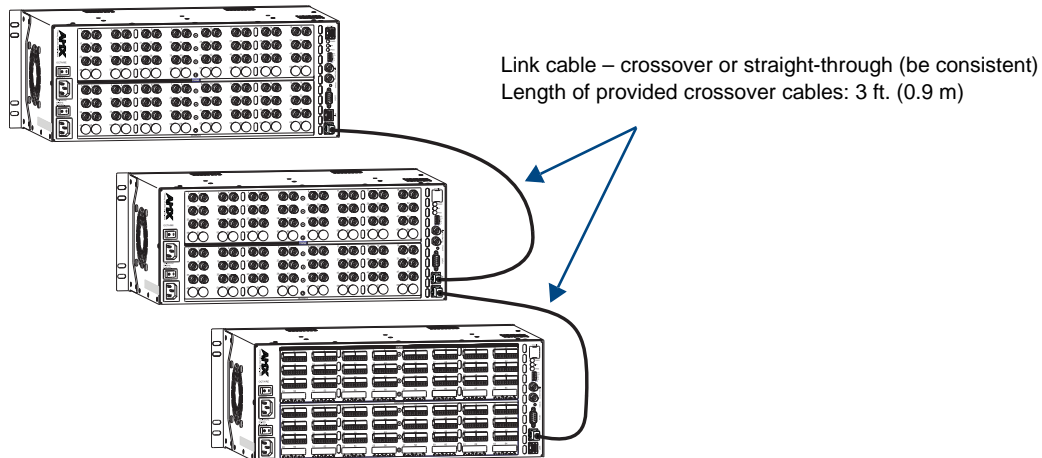


FIG. 11 Use the Link ports to link enclosures with the provided cable or up to 100 ft. (30.5 m) apart

To link three or more Octaire enclosures:

1. Insert one end of the crossover cable into the lower Link port on the primary enclosure (the one with the control panel).
2. Insert the other end of the crossover cable into the upper Link port on the second enclosure.
3. For each additional enclosure in the system, attach crossover cables connecting from one enclosure’s Link port to the next until all enclosures in the system are linked together according to the “Octaire AutoPatch Connector Guide” (see page 96).

When power is applied, the Link connector LEDs illuminate indicating communication status between enclosures (FIG. 12 on page 21).

Link Connector LEDs

The Link (RJ-45) connectors are 10Base-T and have two LEDs that indicate communication status when the enclosure is linked and active.

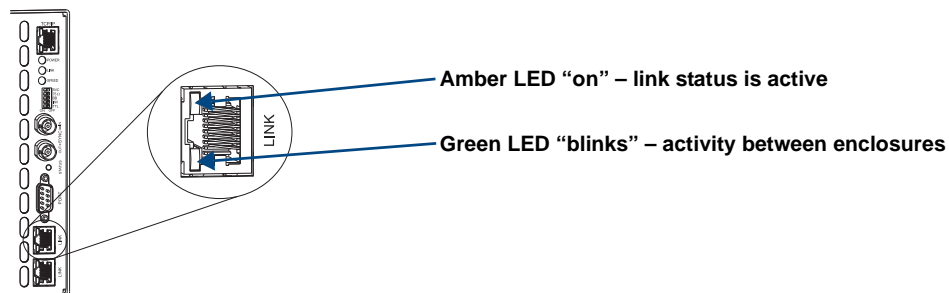


FIG. 12 Link (RJ-45) connector LEDs

Note: The Status LED indicator directly above the DB-9 port on the enclosure's rear indicates system status.

Attaching Inputs and Outputs

Input and output connectors are the attachment points for source and destination devices that connect to the system. Viewed from the rear of an Octaire enclosure, the input connectors are in the center on the top with the output connectors directly below them. Input and output connectors are numbered separately. The numbers are above each connector and read left to right, continuing on the next row of connectors. The configuration of the system determines the number of connectors.

An “Octaire AutoPatch Connector Guide” (see page 96) is included with the primary enclosure to ensure correct routing. The system is programmed to operate based on the guide.

Cabling Video Connectors

All video connectors are BNC. For the BNC connectors on Octaire enclosures, the upper set (inputs) is white and the lower set (outputs) is black. For signal specifications for standard video, ultra-wideband video, and sync video, see the “Signal Types and Specifications” chapter (see page 39).

Video Types

The available video types for the Octaire are

- Composite
- Y/c
- Three-component/HDTV
- RGBHV

Signal Type Labels on Enclosures

Important: Be sure to attach the video cables to the correct enclosure. Octaire enclosures are built and programmed at the factory to handle specific signal types. This is especially important for enclosure systems that contain both ultra-wideband and digital sync enclosures because the enclosures look the same, but they do not support the same signal type.

The enclosures have labels designating the signal type on the rear of each enclosure:

- STD (standard video) – supports composite signals or the Y or c components of Y/c signals
- UWB (ultra-wideband) – supports three-component signals or the R, G, or B components of RGBHV signals
- SYNC (digital sync) – supports the H and V components of RGBHV signals

Depending on the signal type (e.g., component signals), you may need to attach corresponding input and output connectors on more than one enclosure to route the entire signal. For example, FIG. 13 shows three BNC cable connectors attached for routing a three-component signal through Input 1. Follow the “Octaire AutoPatch Connector Guide” (see page 96) to ensure correct routing.

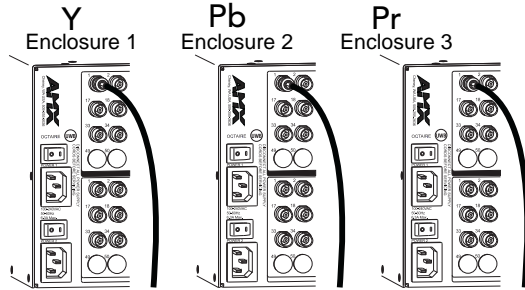


FIG. 13 Three BNC connectors are required for a three-component signal

Installing Color Bands for Signal Types

Before attaching input and output video cables, we recommend installing the applicable color band (a set of colored bands ship with the system) on the first input BNC connector of each enclosure. The color bands help to easily identify the signal type supported by each enclosure when attaching input and output cables and when linking multiple-enclosure systems.

For the signal type to colored band correspondence, see the table below.

Signal Type – Color of Band			
RGB (UWB)	Y/Pb/Pr (UWB)	Y/c (STD)	Composite (STD)
R = Red	Y = Green	Y = Yellow	V = Yellow
G = Green	Pb = Blue	C = Black	
B = Blue	Pr = Red		
HV (SYNC)			
H = White			
V = Black			

Connecting Video Cables

Before connecting all input and output video cables (and, if applicable, wires for stereo), attach the cables (and wires) for the first source and first destination devices only and execute a test switch (see page 30). When the test switch is successful, attach the rest of the input and output cables (and wires).

Tip: Using lacer bars or some other type of cable management system lessens the strain from cable weight on the connectors and makes servicing the Octaire easier.

To connect video inputs and outputs:

1. Fasten the cables onto the input and output BNC connectors (FIG. 14).

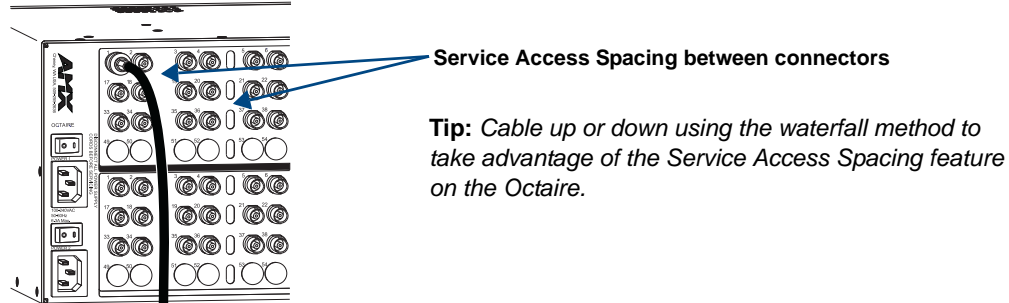


FIG. 14 Fasten cables onto input and output BNC connectors

Wiring Stereo Audio Connectors (5-position terminal block)

The stereo audio connectors for the Octaire are pluggable 5-position terminal block. For stereo audio signal specifications, see the “Signal Types and Specifications” chapter (see page 39). If full stereo is not required, mono audio can be used; wire either the left or right channel for all inputs and outputs.

Wiring Sources and Destinations

Source and destination devices will require either balanced (differential) or unbalanced (single-ended) connections. FIG. 15 illustrates options for wiring between sources and input connectors and between output connectors and the destinations. More than one option can be used in the same system. For balanced and unbalanced wiring details, see FIG. 16.

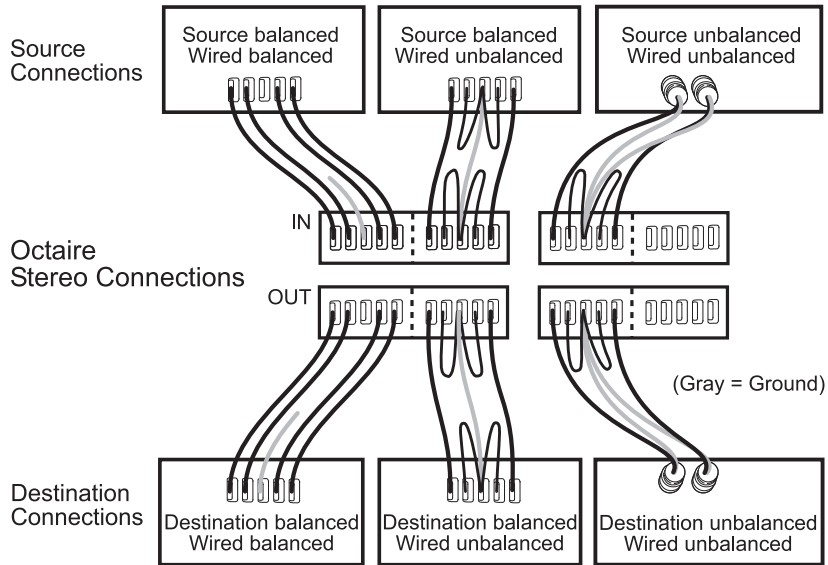


FIG. 15 Options for source-to-Octaire-to-destination 5-Term wiring

Attaching Wires

To attach stereo audio input and output wires:

1. Unscrew the clamps on the audio connector.
2. Insert the wires and firmly re-tighten the clamps to make secure connections.
 For balanced audio wire placement, see the left wiring diagram in FIG. 16.
 For unbalanced audio wire placement, see the right wiring diagram in FIG. 16.

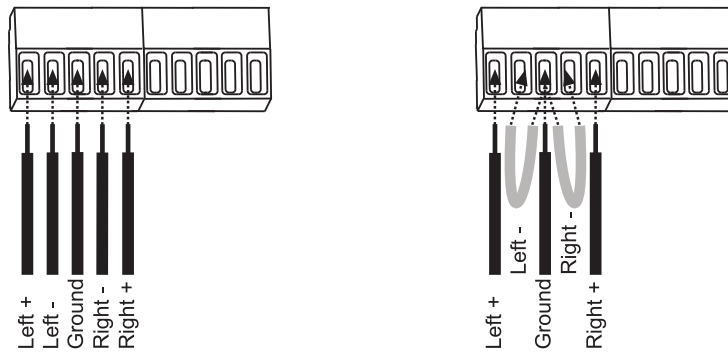


FIG. 16 Balanced audio

Unbalanced audio

Note: For stereo audio signals using twisted pair wire, connect the shield (ground) only at one end (recommend receiving end) to minimize low frequency noise.

Attaching External Control

Note: *The Octaire has a fixed configuration that was programmed at the factory.*

The Octaire can be controlled externally by attaching a control device that uses one of the communication protocols listed below:

- **BCS (Basic Control Structure)** – ASCII sent over a null modem serial cable via RS-232
- **XNNet** – AMX AutoPatch protocol via RS-232
- **TCP/IP** – See “Connecting to the APWeb Server” on page 35

In a multi-enclosure Octaire system, only the primary enclosure (with control panel) is enabled for external control via the serial port or TCP/IP port. Serial ports on secondary enclosures are primarily intended for single enclosure diagnostic information and system firmware upgrades. (The Octaire cannot be controlled with a remote control panel.)

Control Options

The communication protocols listed above are used for these control options:

AMX Control Devices

The Octaire, which supports Device Discovery, is compatible with a number of AMX control devices. For control programming information, see the instruction manual for the specific interface.

Important: *Device Discovery functionality (beacon response) will only function properly if the NetLinx master is connected to the RS-232 control port on the primary enclosure (the one with the control panel).*

APControl 3.0

APControl 3.0 software (for control and scheduling) runs on a PC connected to an Octaire via the serial port (DB-9) on the primary enclosure and is available on the *AMX AutoPatch CD*.

APWeb (TCP/IP)

The APWeb server (for control, diagnostics, and third-party access) is accessed through a TCP/IP interface such as a web browser (e.g., Internet Explorer). The Octaire TCP/IP port is used to access APWeb. For connecting to the APWeb server, see page 35. For APWeb Server setup and operation information, see the “APWeb – Initial Setup by Network Admin” chapter on page 67 and the “APWeb – Controlling the Octaire” chapter (see page 87).

Important: *Contact AMX regarding limitations and conditions for operating an Octaire on a company LAN.*

XNNet Protocol (Serial)

Advanced programmers who want to design their own control programs can use AMX AutoPatch XNNet protocol. The *AMX AutoPatch CD* includes the XNNet Communication Library, an interface library that supports C, Java, and Visual Basic with examples of the XNNet protocol in use.

BCS (Serial) Control

AMX AutoPatch has developed a command language, BCS (Basic Control Structure), for executing control operations and for diagnostic purposes. BCS commands are issued via a terminal emulation program, such as Windows[®] HyperTerminal. For information on BCS commands, see the *BCS Protocol Instruction Manual* on the *AMX AutoPatch CD* and at www.amx.com.

Third-Party Controllers (Serial)

Third-party controllers connect to the serial port (DB-9) on the right rear of the primary enclosure. If using a third-party controller, see the controller documentation for setup and operating instructions.

Connecting Serial Controllers

An external serial controller is any device that can send and receive ASCII code over an RS-232 (null modem) serial cable attached to the serial port (DB-9) on the right rear of the primary enclosure. PCs are common serial controllers. Once a PC is attached to the Octaire, the system can be controlled by running AControl software on the attached PC (see the *AMX AutoPatch CD*). The system can also be controlled by entering BCS commands into a terminal emulation program (e.g., HyperTerminal). For information on BCS commands, see the *BCS Protocol Instruction Manual* on the *AMX AutoPatch CD* and at www.amx.com.

PC Requirements for AControl 3.0

- Windows XP Professional® or Windows 2000®
- Java Runtime Environment (JRE): v1.4.2 or the latest version
- Minimum Hardware: 166 MHz, 128 MB RAM, 20 MB free disk space, 800x600 display
- Recommended Hardware: 2.0 GHz, 512 MB RAM, 20 MB free disk space, 1280x1024 display
- Serial port

PC Requirements for BCS

- Windows XP Professional® or Windows 2000®
- Terminal emulation program (e.g., HyperTerminal)
- Serial port

Connecting an External Serial Controller

Use a null modem cable that matches the pin diagram in FIG. 17 for RS-232 without hardware flow control. AMX AutoPatch equipment requires pins 2, 3, and 5 only.

The Octaire is tested with a manufactured cable to a maximum length of 100 ft. (30.5 m). The maximum length of null modem cable that can be used in specific systems will vary according to the quality of the cable.

RS-232 Pin Diagram

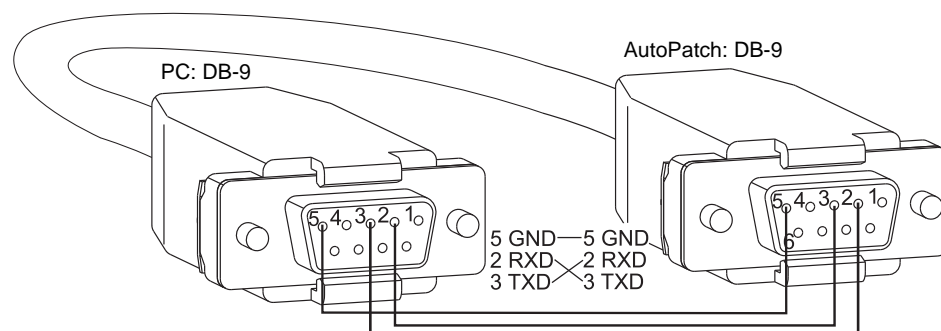


FIG. 17 RS-232 pin diagram (no hardware flow control)

Serial Communication Settings

When controlling the system with a serial controller, use serial communication software and make sure the baud rate is set at 9600. The settings on the PC serial communication software and the enclosure *must* correspond to each other. Octaire communication settings are baud rate = 9600, data bits = 8, stop bit = 1, and parity and flow control = none.

To establish external serial control:

1. Plug one end of the null modem serial cable into the serial port (DB-9) on the primary enclosure (FIG. 18).
2. Plug the other end of the serial cable into the serial port on the serial controller.

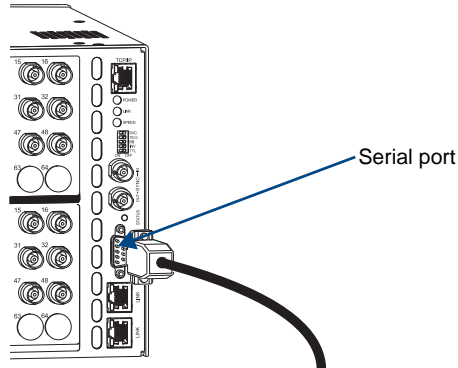


FIG. 18 Connect to serial port on primary enclosure

3. If the power is not already on, apply power first to the Octaire enclosure(s) and then to the source and destination devices (see page 27, “Applying Power and Startup”).

Note: Follow the power-up sequence on page 27. We recommend attaching all power cords to surge protectors and/or AC line conditioners.

4. Setup and run the desired method of control:

AMX Control Devices – The Octaire, which supports Device Discovery,* is compatible with a number of AMX control devices. For control programming information, see the instruction manual for the specific interface.

APControl 3.0 – Install and open the program from the *AMX AutoPatch CD* (if your account has the required permissions, the program can be downloaded from www.amx.com). For APControl to control the Octaire, the configuration *must* be manually entered and *must* match the actual Octaire configuration. From the APControl Launchbar menu, select System/New; select Heritage System/Next; select Manual Configuration Entry/Next; enter system parameters and click Add VM information/Next; and finish the Wizard instructions.

Terminal emulation – Open the program (e.g., HyperTerminal), select the COM port, and set the settings to match the Octaire serial port settings (baud rate = 9600, data bits = 8, stop bit = 1, and parity and flow control = none).

Click OK.

A short splash screen appears.

Enter BCS (Basic Control Structure) commands. For information on BCS commands, see the *BCS Protocol Instruction Manual* on the *AMX AutoPatch CD* and at www.amx.com.

5. Execute a test switch to ensure the Octaire is working properly (see page 30, “Executing a Test Switch”).

* Device Discovery functionality (beacon response) will only function properly if the NetLinx master is connected to the RS-232 control port on the primary enclosure (the one with the control panel).

Applying Power and Startup

Two standard US power cords for the redundant power supplies are provided for installations within the US. Maximum power specifications are on the power receptacle (also listed on page 13). Always use an earth-grounded power cord / system with an Octaire system.

The source electrical outlet should be installed near the Octaire, easily accessible, and properly grounded. Power should come from a building branch circuit. We strongly recommend using a dedicated line for the system's power. Use a minimum breaker current rating of 30 A for 110 V or 15 A for 230 V. To avoid an overload, note the power consumption rating of all the equipment connected to the circuit breaker before applying power.

Complete Power Redundancy Setup

For proper redundant operations, both power supplies *must* be powered at all times. To take full advantage of the dual power feeds and redundant power supplies on the Octaire, we recommend cabling the primary (upper) Octaire power feed(s) via a power strip to an outlet connected to one circuit breaker and the redundant (lower) power feed(s) via a power strip to an outlet connected to a second circuit breaker (FIG. 19).

Note: We recommend attaching all power cords to surge protectors and/or AC line conditioners.

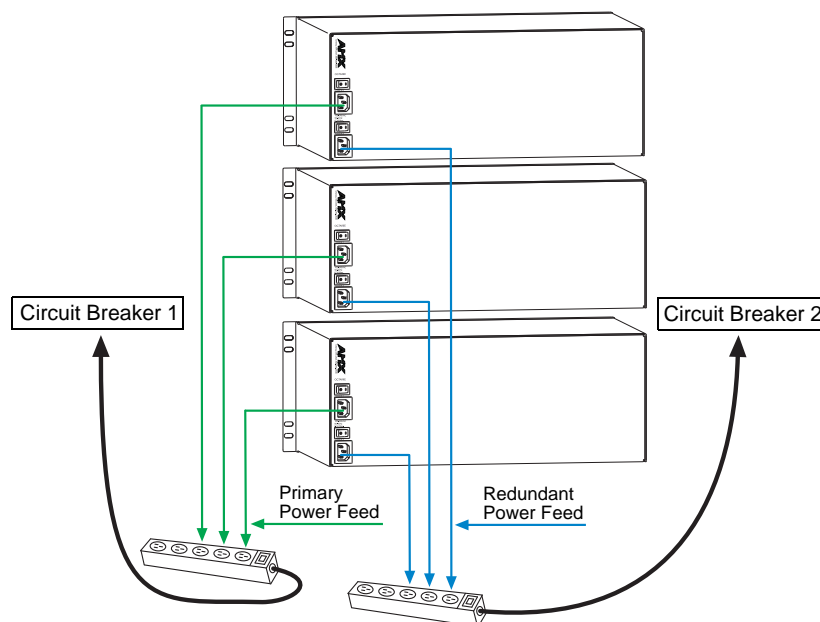


FIG. 19 Power setup for complete redundancy

Power-Up Sequence

To apply power:

1. Attach the first source device and the first destination device (see page 21, “Attaching Inputs and Outputs”). Depending on the signal type (e.g., component signals), you may need to attach multiple input and output connectors.
Do not apply power to the source and destination devices until Step 7.
2. Optional – Attach an external controller (see page 24, “Attaching External Control”).

3. Plug power cords into the power receptacles on the enclosure (repeat for additional enclosures in multi-enclosure systems). Press the “I” side of both power switches on each enclosure (FIG. 20).

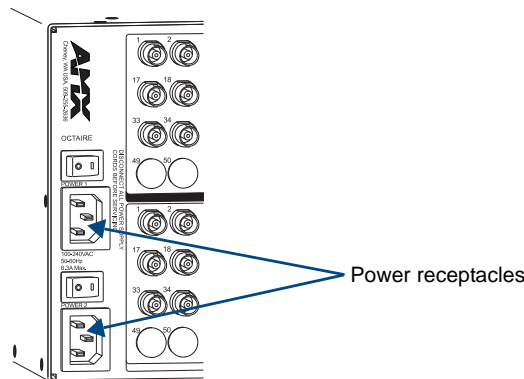


FIG. 20 Plug power cords into power receptacles

4. Plug the other end of each power cord into a power strip *that is turned off* (we recommend using a 30 A power strip).
5. Turn on the power strip and wait 30 seconds.
The Power indicator on the front of the panel illuminates green (both redundant power supplies are working). If only one power supply is working, the Power indicator will illuminate red (check power connections and switches).
6. Optional – Apply power to the external control device/system.
7. Apply power to the source and destination devices.
The LCD on the control panel illuminates and displays the menu screen.
8. The system is ready for a test switch (see page 30, “Executing a Test Switch”).

The system is ready to execute a test switch using the control method of your choice. For startup information on specific types of control before executing a test switch, see page 30.

Indicator Lights at Startup

When the enclosure powers up, the indicator LEDs will respond as follows:

Octaire LED Indicators				
	LED	Indicates	Normal Display	Cautionary
Enclosure Front	Power	System power	Constant green	Constant red
Enclosure Rear	TCP/IP – Power – Link – Speed (see page 35)	System receiving power Active link status with server Speed status is either 100 Mbps or 10Mbps	On On On – Speed status is 100 Mbps Off – Speed status is 10 Mbps	
	Status	System status	Constant green during power up, then blinking green at 1/2 second on/off intervals	Blinking red or red/green at 1/2 second on/off intervals
	<u>Linked Systems</u> Link – Amber – Green (see page 21)	Activity between enclosures Active link status	Amber – Blinks with activity Green – On	

Important: If the indicator lights do not respond with a normal display as stated above, check power connections and switches, and then contact technical support (see page 31).

Control Panel Startup

When the system is powered up, the LCD on the control panel will display the Function menu screen (FIG. 21).



FIG. 21 Function Menu screen on the Octaire control panel

APWeb Startup

If you have not already done so, use the TCP/IP port on the primary enclosure to connect to a LAN or to a PC (see page 36).

Serial Control Device Startup

If you have not already done so, use the DB-9 Port on the primary enclosure to attach the serial control device to the enclosure (see page 24) and open your control program.

AMX Control Devices

The Octaire is compatible with a number of AMX control devices. For control programming information, see the instruction manual for the specific interface. The Octaire also supports Device Discovery.

Important: *Device Discovery functionality (beacon response) will only function properly if the NetLinx master is connected to the RS-232 control port on the primary enclosure (the one with the control panel).*

APControl 3.0

If you are using APControl 3.0, install and open the program. Follow the directions in Step 4 on page 26. From the Launchbar menu, select Views / CrossBar and click on the crosspoints to execute switches.

HyperTerminal

When power is applied to the enclosure, HyperTerminal displays a one-line splash screen followed by “Ready” (FIG. 22). The system is ready to execute a test switch (see page 30). If you need to access advanced system information, see Appendix B, “Programmer’s Interface for System Diagnostics” on page 97.

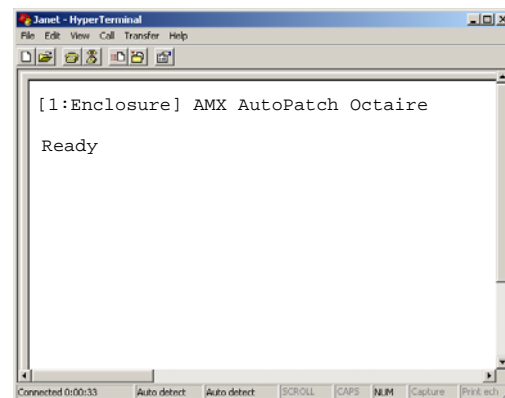


FIG. 22 Power-up splash screen in HyperTerminal

Note: *AMX reserves the right to add to the contents of the splash screen at any time, without notice.*

Executing a Test Switch

For new system installations, we recommend executing a test switch to verify the system is working properly before attaching *all* inputs and outputs. Aside from having signal cables and a controller attached, the system is ready to execute switches when it ships from the factory.

The first source device and first destination device must be attached to their input and output connectors (for specific signal type information and specifications, see the “Signal Types and Specifications” chapter, page 39). After the devices are connected, power must be applied to the enclosure and then to the devices before executing a test switch.

Note: *If the signal from the source or destination device is a component signal that requires being attached to multiple input or output connectors (e.g., a Y/Pb/Pr signal that requires three connectors), all of the signal cables for that signal must be attached before executing the test switch.*

You can execute a test switch from the following:

- Control Panel
- AMX Controllers
- Control software such as APControl 3.0 or APWeb
- BCS (Basic Control Structure) commands over an external controller
- An external third-party controller

Executing a Test Switch (applicable to new system installations only)

Before executing the test switch, make sure the first source device and the first destination device are connected to the correct input and output connectors (see page 21).

The test switch is based on routing Input (source) 1 to Output (destination) 1.

Control Panel

Directions for executing and disconnecting switches using the control panel can be found in the “Control Panel Operations” chapter (see page 43).

AMX Controllers

The Octaire is compatible with a number of AMX control devices. For control programming information, see the instruction manual for the specific interface.

APControl 3.0 or APWeb

Directions for executing and disconnecting switches using APControl 3.0 are found in its Help file. For directions for executing switches using APWeb, see page 72.

BCS Commands

To enter BCS (Basic Control Structure) commands, the system must be attached to a serial control device (see “Attaching External Control,” page 24) running a terminal emulation program, such as Windows® HyperTerminal. The settings on the PC serial communication software and the enclosure must correspond to each other. For setting information, see page 26.

When using HyperTerminal, command characters are entered and sent to the primary enclosure’s CPU (the command characters appear in HyperTerminal when the enclosure responds). When all of the entered characters appear in HyperTerminal, the command has been successfully executed.

The test switch below routes Input 1 to Output 1. To switch both video and audio signals enter “L0”, (as in the example following). To switch video only enter “L1” or to switch audio only enter “L2”.

To execute the test switch:

1. Enter the following BCS command line:

```
CL0I1O1T
```

When the “T” appears, the system has successfully executed the command. If any other character appears, the command was not successful. Verify that the source signal is present (visible and/or audible) at the destination.

For a complete list of BCS commands and responses, see the *BCS Protocol Instruction Manual* on the *AMX AutoPatch CD* and at www.amx.com.

Troubleshooting

If the test switch did not execute correctly:

- Check the power indicator on the front of the enclosure.
If it is not illuminated, check the power cords.
- Verify the status of the test switch.
If using BCS commands, enter “SL0O1T”. If “SL0O1T(1)” appears, the test switch is routed correctly (the system established a connection between the specified input and output connectors within the enclosure).
- Check all link and signal connections on the rear of the enclosure(s) to make sure everything is physically set up correctly.
- Check all power switches on source and destination devices to make sure they are all on.
- Isolate source and destination equipment and cable problems by patching around the router using barrel connectors to check the overall signal path.
- Attempt the switch again.

If the switch still does not work, contact technical support (see below).

Technical Support

Before contacting technical support with a question, please consult this manual. If you still have questions, contact your AMX representative or technical support. Have your system’s serial number ready. (The serial number label is located on the rear next to the power receptacles.)

We recommend recording your system’s serial number in an easily accessible location.

AMX Contact Information

- 3000 Research Drive, Richardson, TX 75082
- 800.222.0193
- 469.624.8000
- Fax 469.624.7153
- Technical Support 800.932.6993
- www.amx.com

Cabling and Setup for Vertical Interval Sync

The Vertical Interval Sync (VIS) signal provides complete vertical interval synchronization switching capability for an Octaire system.

The VIS function uses an external master sync signal, such as station master, blackburst, or composite video input. When all of the source devices are genlocked to the same source, the master sync signal synchronizes the video switching to occur during the vertical interval (pulse), eliminating vertical roll or jitter on the monitor. The master sync signal also synchronizes all video switching for systems with multiple enclosures.

The VIS “Sync In” connector on the primary enclosure must be attached to an external sync source generating one of the following signal types:

- Blackburst generator
- NTSC composite video

The VIS (BNC) connectors “Sync In” and “Sync Out” are to the far right on the rear of the enclosure.

Cable Requirement for VIS

- 75 ohm coax video cable (customer provided)

Cabling a Composite Enclosure for VIS

To send the sync signal to a composite enclosure:

1. Attach the external sync cable from the signal source to the Sync In connector on the right rear of the enclosure (FIG. 23).

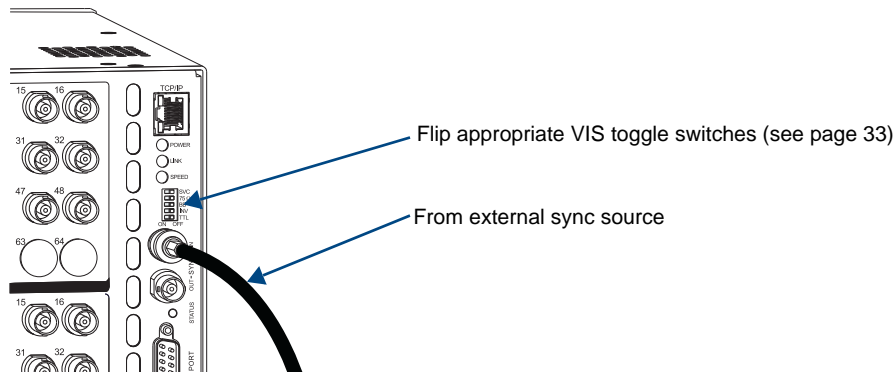


FIG. 23 Attach external sync cable to Sync In connector

2. Flip the appropriate VIS toggle switches to the left for the sync signal type being used (see page 33).

Cabling a Multi-Enclosure System for VIS

When linking sync cable from enclosure to enclosure, use the upper sync connector for the incoming sync signal and the lower sync connector for the outgoing sync signal on each video enclosure.

To send the sync signal to a multi-enclosure System:

1. Attach a cable from the external sync source to the primary enclosure’s Sync In connector (FIG. 24 on the next page) on the right rear. (The primary enclosure is the one with the control panel.)

2. Attach a cable to the Sync Out connector on the primary enclosure (FIG. 24).

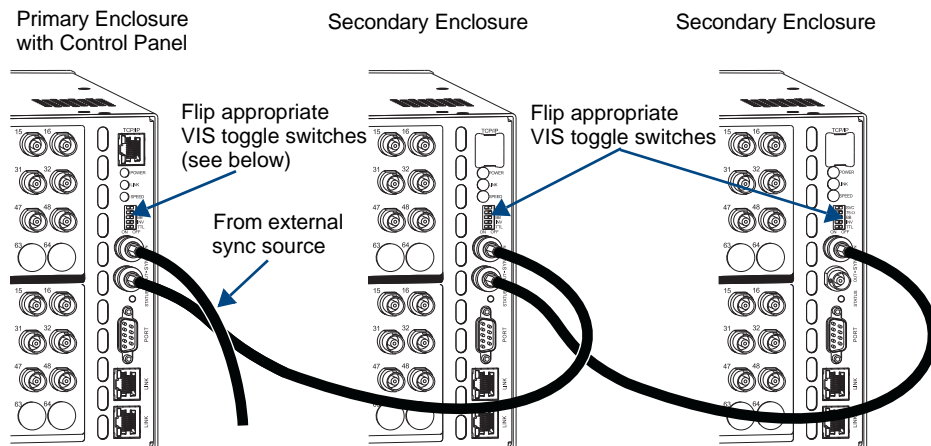


FIG. 24 Sync signal routed to multiple enclosures

3. Attach the other end of the cable to the Sync In connector on the second enclosure.
4. For all additional video enclosures, cable the Sync Out connectors to the Sync In connectors.
5. Flip the appropriate VIS toggle switches on each enclosure to the left for “on” and right for “off” according to the information provided below.

VIS Toggle Switches

The VIS toggle switches on the rear of the primary enclosure *must* be set to agree with the type of signal used for Vertical Interval Sync. On any secondary enclosure(s), the TTL toggle switch is the only VIS switch set to “on.”

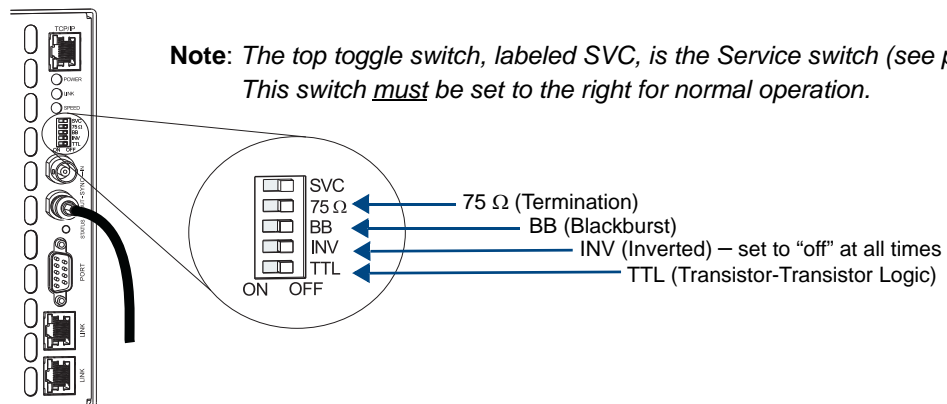


FIG. 25 VIS toggle switches

Primary Enclosure

The setting for the VIS toggle switch on the primary enclosure (the one with the control panel) depends on the type of external sync source.

- If the external sync source is a Blackburst generator or NTSC composite video, set the BB (Blackburst) switch to “on” (be sure the TTL switch is “off”).
- If the external sync signal is a TTL composite sync input, set the TTL switch to “on” (be sure the BB switch is “off”).

Note: If you need to provide a 75 ohm load for the external source, set the 75 ohm switch on the primary enclosure to “on” to provide the load. (When the 75 ohm switch is “off,” the input is terminated at high-impedance.)

Secondary Enclosure(s)

- Set the TTL switch to “on” (be sure the BB switch is “off”).

Important: *The INV (Inverted) toggle switch must be set to “off” at all times.*

To set the VIS toggle switches:

1. Using a small screwdriver or paper clip, toggle each video enclosure’s DIP switch according to the information provided on the previous page.

Important: *After the VIS toggle switches are set, the system must be enabled from the control panel to handle VIS switching.*

2. Enable the system for the VIS switching according to the directions in the “Setup Options” section on page 59.

Connecting to the APWeb Server

The APWeb server delivers HTML pages and Java applets, which allow for remote control and diagnostics of an AMX AutoPatch Routing System using PC-based Internet browsing software. In addition, one of the pages opens a Telnet server, providing a standard terminal interface for entering AMX AutoPatch BCS (Basic Control Structure) commands.

The primary enclosure (the one with the control panel) on the Octaire system is connected via a link (RJ-45) cable to a LAN (Local Area Network), the Internet, or a network card in a PC (which could then connect to a LAN or the Internet). The connection directions follow. For setup and operation details for the APWeb server, see the “APWeb” chapter (see page 67).

Important: *Although it is also possible to provide access from outside a LAN via the Internet, security issues for your LAN environment must be taken into account (contact your Network Administrator).*

TCP/IP Port and Indicator LEDs

The TCP/IP port used for APWeb is located on the rear of the primary enclosure in the upper right corner (FIG. 26).

Note: *The Link connectors at the lower right of the enclosure are for linking enclosures; do not attempt to use them for APWeb.*

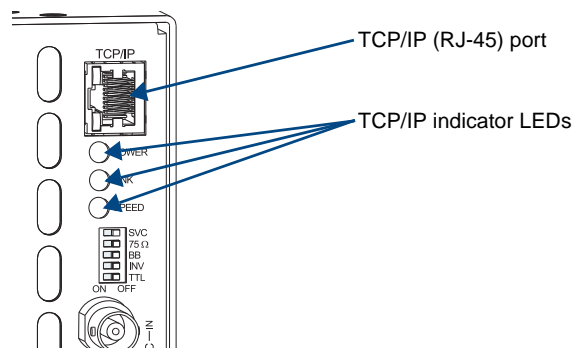


FIG. 26 TCP/IP port and indicators

The TCP/IP port is an Ethernet link connector, handling Ethernet 10/100 connections for 10 Mbps (megabits per second) and 100 Mbps. This connection is compatible with most Ethernet based LANs. Three LEDs directly below the port indicate the Ethernet connection status and speed (FIG. 26).

The three green LEDs indicate the following:

- **Power Indicator**
On – System is receiving power
- **Ethernet Link Indicator**
On – Link status is active
- **Ethernet Speed Indicator**
On – Speed status is 100 Mbps
Off – Speed status is 10 Mbps

Note: *The two small rectangular LEDs on the RJ-45 connector are not used for the TCP/IP function.*

Service Switch (SVC)

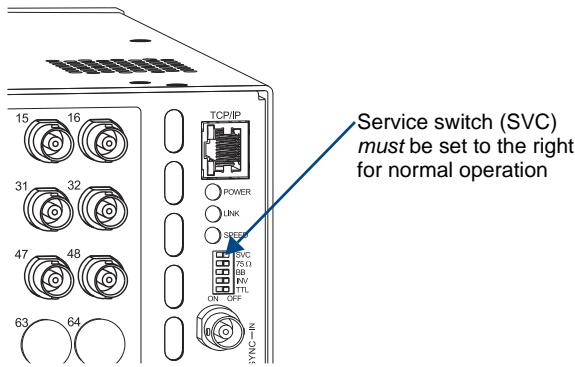


FIG. 27 Octaire Service switch

The Service switch (directly below the Ethernet Speed indicator LED) can be used to override system security if the username and password are lost. The Service switch can also be used to upgrade the APWeb firmware. *Do not* attempt to upgrade the firmware unless directed to do so by technical support. For normal operations, the Service switch *must* be flipped to the right. For more information on the Service switch, see page 81 in the “APWeb” chapter.



Caution: For security purposes, firmware upgrades cannot be performed remotely.

APWeb System Setup

The system setup example in FIG. 28 illustrates an Octaire Distribution Matrix connected to a LAN. Both computers in the illustration have access to the Octaire. If only one computer will be used, the Octaire’s APWeb (TCP/IP) port can be connected directly to the computer’s network card.

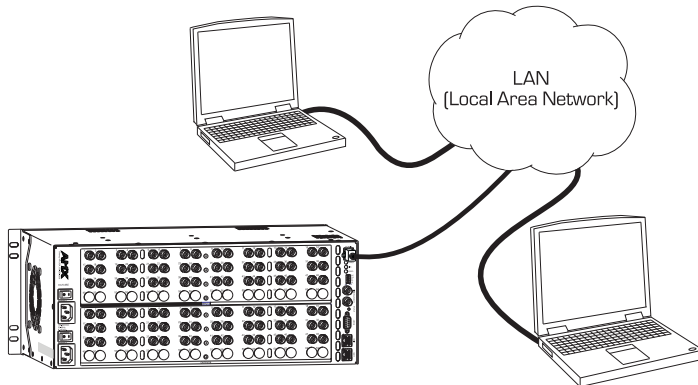


FIG. 28 Octaire enclosure connected to a LAN via TCP/IP (APWeb) port

Cable Requirements

- Computer Connection (NIC Card) – A crossover (RJ-45) cable is required to connect the Octaire enclosure directly to a network card in a computer. The cable must be wired to TIA / EIA specification TIA / EIA-568-B on one end and TIA / EIA-568-A on the other end.
- LAN Connection – A straight-through (RJ-45) cable is required to connect the Octaire enclosure to a LAN. The cable must be wired to TIA / EIA specification TIA / EIA-568-A.

To connect the Octaire system to a LAN or to a PC:

1. Complete the installation of the Octaire system (see page 17); *do not apply power to the system until Step 4 below.*
2. Insert one end of the straight-through (RJ-45) cable into a network (NIC) card on a PC or an active LAN connection.
3. Insert the other end of the straight-through cable into the TCP/IP port on the Octaire enclosure.

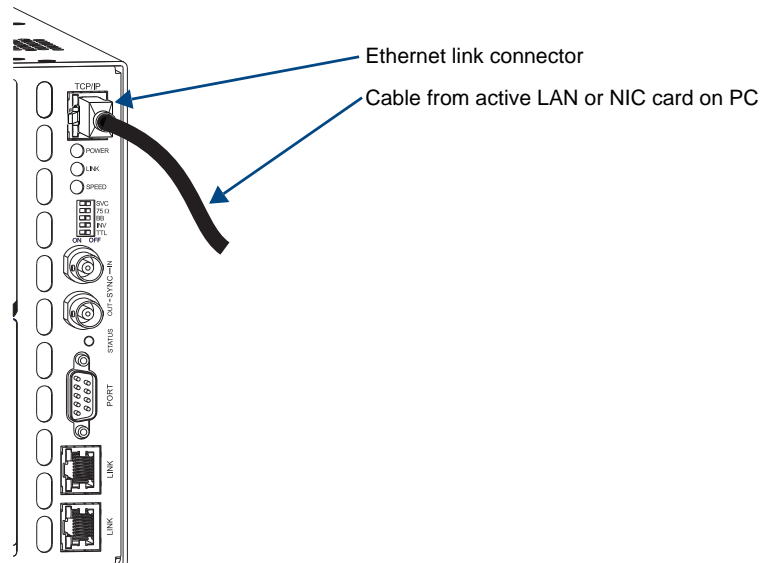


FIG. 29 Fasten the Ethernet link connector

4. Apply power to the Octaire enclosure(s) according to the directions on page 27.
5. Check the indicator LEDs (see page 28).
6. Allow 20 to 60 seconds for the server to discover the system.
7. Complete the installation by testing the connection.*

* To test the connection and for complete instructions on APWeb server setup and operation, see the “APWeb – Initial Setup by System Admin” chapter (see page 67).

Signal Types and Specifications

The Octaire Distribution Matrix is a fixed system, i.e., containing a single video type (with a single component per enclosure) or a single stereo audio enclosure or a single video type with stereo audio in a fixed input/output (I/O) range. The available I/O configuration sizes are 32x48, 32x64, 48x32, 48x48, 48x64, 64x32, 64x48, and 64x64. This chapter contains signal specifications for each signal type.

Video Signals

Video Types

The available video types for the Octaire are:

- Composite (in a single standard video enclosure)
- Y/c (in two standard video enclosures)
- Three-component/HDTV (in three ultra-wideband video enclosures)
- RGBHV (in three ultra-wideband video enclosures and two sync enclosures)

For information on understanding signal type labels on enclosures, using the color band kit for the BNC connectors, and attaching video cables, see “Attaching Inputs and Outputs” on page 21.

Standard Video

Standard Video Signal Specifications		
Frequency Response	Fully loaded	±3 dB, 150 MHz or better
Crosstalk	f = 1 MHz f = 5 MHz f = 10 MHz f = 30 MHz f = 100 MHz f = 150 MHz	<-80 dB <-75 dB <-64 dB <-57 dB <-53 dB <-51 dB
Differential Gain	f = 3.58 MHz	<0.2% or better
Differential Phase	f = 3.58 MHz	<0.2° or better
Signal to Noise Ratio	V _{in} = 0.7 V, 100 IRE	>65 dB
Input Level (max.)		±1.25 V
Input Impedance		75 ohms
Output Level (max.)		±1.25 V
Output Impedance		75 ohms
Connectors		BNC

Ultra-Wideband Video

Ultra-Wideband (RGBHV) Signal Specifications		
Frequency Response	Fully loaded Fully loaded Fully loaded	± 3 dB, >600 MHz average ± 3 dB, 500 MHz or better ± 1.5 dB, 150 MHz or better
Crosstalk	f = 1 MHz f = 5 MHz f = 10 MHz f = 30 MHz f = 100 MHz f = 150 MHz	<-80 dB <-79 dB <-74 dB <-71 dB <-60 dB <-52 dB
Signal to Noise Ratio	V _{in} = 0.7 V, 100 IRE	>65 dB
Return Loss	f = 5 MHz	<-45 dB
Input Level (max.)		± 1.0 V
Input Impedance		75 ohms
Output Level (max.)		± 1.0 V
Output Impedance		75 ohms
Connectors		BNC

Sync

Sync Signal Specifications		
Input Level Signal Range		0 to +5 Volts
Input Impedance		510 ohms
Input Trigger Voltage*		+1.75 V
Input Polarity	Output polarity follows input polarity	Active high or low
Output Level Signal Range		0 to +5 Volts
Output Impedance		50 ohms
Output Polarity	Output polarity follows input polarity	Active high or low
Connectors		BNC

* The input trigger voltage specification indicates the point which determines if the HV sync pulse is high or low. An incoming sync signal below +1.75 V will be interpreted as low, and an incoming sync signal above +1.75 V will be interpreted as high.

Stereo Audio Signals

All Octaire systems with an audio enclosure route stereo audio signals. If full stereo is not required, the Octaire can be used for mono audio; wire either the left or right channel for all inputs and outputs.

For information on wiring the connectors for balanced or unbalanced connections and on wiring sources and destinations, see page 23.

Stereo Audio

Stereo Audio Signal Specifications		
Frequency Response	20 Hz to 20 kHz	<±1 dB
THD + Noise	f = 1 kHz, Vin = +2 dBu f = 1 kHz, Vin = -10 to +4 dBu	<0.03% <0.05%
Crosstalk	f = 1 kHz, Vin = +14 dBu	<-100 dB
Channel Separation	f = 1 kHz, Vin = +14 dBu	>90 dB
Signal to Noise Ratio (SNR)	20 Hz to 20 kHz, Vin = +4 dBu	>84 dB
CMRR	20 Hz to 20 kHz	>75 dB
Input Level (max.)	Balanced	+4 dBu
Input Impedance		18 kohms
Input Gain Adjustment Range (digital)	Via software/control panel*	±10 dB
Output Level (max.)	Balanced	+14 dBu (when +10 dB of gain is set in software)
Output Impedance	Unbalanced Balanced	50 ohms 100 ohms
Output Volume Adjustment Range (digital)	Via software/control panel*	+10 dB to -70 dB (mute)
CMRR	20 Hz to 20 kHz	>75 dB
Type		Balanced or unbalanced
Connectors		Pluggable 5-position terminal block

* The total of input gain plus output gain cannot exceed +10 dB.

AMX reserves the right to modify its products and their specifications without notice.

Octaire Control Panel Operation

Overview

The Octaire Control Panel (standard on all systems) is used for controlling the system's switches and system attributes. In multi-enclosure systems, the Control Panel is attached to the primary enclosure.

Note: *AMX AutoPatch software can also be used to control a system; for more information, see the AMX AutoPatch CD. In addition, AMX AutoPatch enclosures can be controlled using BCS (Basic Control Structure) commands transmitted through an external controller; see the "BCS Protocol Instruction Manual" available on the CD or at www.amx.com.*

The Control Panel has an LCD, a Function Key, a Control Dial, a Select Key, a Cancel Key, a Take Key, Input and Output Keys, and a Power Indicator. The Control Dial and Select Key work together for scrolling through the menus displayed on the LCD to place the system into various modes (the types of operations, e.g., Change Mode) or to access lists for control operations. Once in the desired mode, use the Input and Output Keys to select values and the Take Key to execute the operations (some modes require using the Control Dial and Select Key to select values).

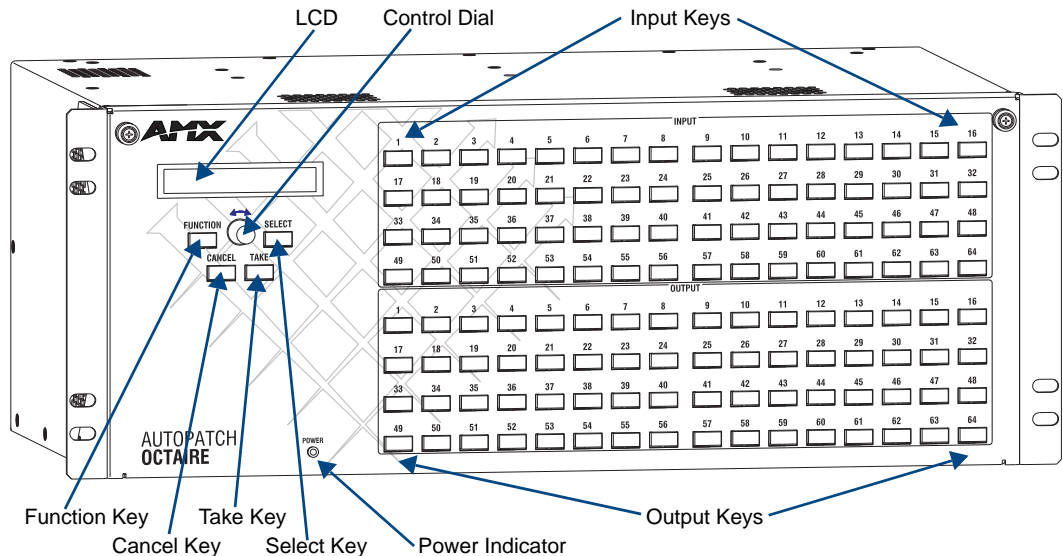


FIG. 30 Octaire Control Panel

Control Keys and Dial

Function Key

The Function Key accesses the Function menu on the LCD. As the Control Dial is scrolled, the menu displays the various command options, e.g., Status, Disconnect, etc. The Function Key can be pressed at anytime to return the display to the Function menu. For an overview of menu options, see page 45.

Select Key

The Select Key enters a selection. In addition, the Select Key can be used to execute global presets; however, the Select Key *cannot* execute or disconnect switches. Pressing the Take key executes or disconnects switches.

Cancel Key

Pressing the Cancel Key clears an incomplete operation and returns the display to the beginning of a submenu or list. The Cancel Key *cannot* undo a completed operation, e.g., an operation followed by the pressing of the Take Key or an audio adjustment made with the Control Dial. If the Cancel Key flashes, an error has occurred; a flashing Cancel Key must be pressed before continuing.

Control Keys and Dial (continued)

Take Key

The Take Key functions much like the Enter Key on a computer keyboard. Pressing the Take Key instructs the system to execute or disconnect a switch. Prior to pressing the Take Key, the individual operation component(s) are selected by pressing the appropriate key(s).

Control Dial

The Control Dial scrolls through menu options and adjusts values, such as volume. The Control Dial is used in conjunction with the Select Key to choose commands and values on the LCD and change routing levels between All (audio-follow-video), Video, and Audio.

Input and Output Keys

Input and Output Keys correspond to the input and output connections on the rear of the enclosure. These keys are used to select the inputs and outputs for routing source signals to destination devices, as well as for status and audio operations. Input Keys are also used for locking and unlocking the Control Panel.

When an Input or Output Key is pressed, the channel name (e.g., Output 3: O_Ch:0003) displays on the LCD. Hold the key down to display the name longer.

The color of the Input and Output Keys indicate availability or selection:

- **Blue key** – indicates the input or output can be selected as part of the current operation.
- **White or flashing white key** – indicates an input or output has been selected and that further action is required to complete the operation. When verifying Status, the key corresponding to the selected input or output is white; keys that correspond to the connected input or outputs turn white. When a key is flashing white, it cannot be unselected and does not display label information on the LCD when pressed. Select another key or press the Cancel Key to unselect.
- **Non-illuminated key** – indicates the input or output is not available for the current operation, e.g., Input Keys are unavailable when the panel is in Output Volume Mode. Some keys are never illuminated if the switcher’s configuration size is not a full 64x64.

FIG. 31 shows various keys states while in Change Mode. Input Key 45 is flashing white, indicating that input was selected first. Outputs Keys 14 and 15 are white, indicating that those outputs have also been selected (and can be unselected). The switch from Input 45 to Outputs 14 and 15 will be executed when the Take Key is pressed. Note that the keys in the row of Inputs 49 through 64 are not available.

Key flashing white (Input selected)

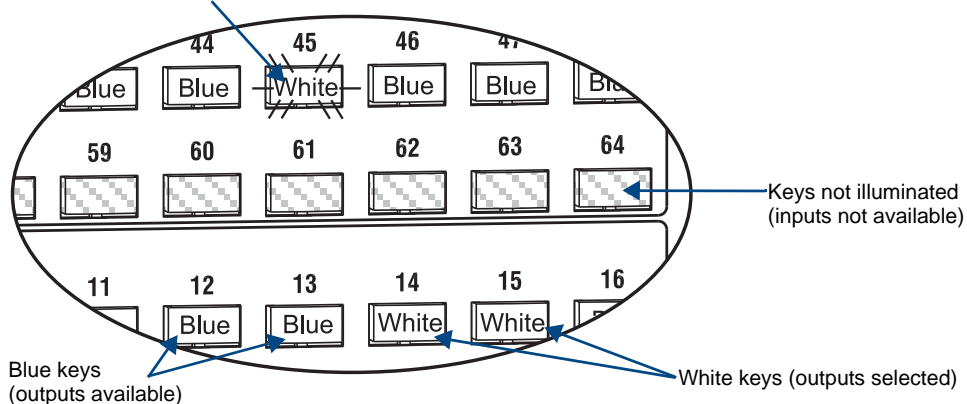


FIG. 31 Example of key states during Change Mode

Menus and Modes

The Function menu and its submenus access the modes and functions used to control the system. The modes are Change, Virtual Matrix, Status, Disconnect, Setup Options, Lock Panel, Adjust Audio, and Global Preset. While in a mode, the same command can be repeated, without having to return to the Function menu to reselect the mode e.g., when in Mute Mode you can select various outputs to mute and un-mute.

Use the Control Dial and Select Key to navigate the Function menu, and submenus. The Function menu and the submenus are loop menus, which means that each menu returns to the first item after you scroll past the last item.

Note: A clear label with white lettering that shows the entire LCD Function menu (as shown to the right) is included in the Control Panel Label Kit shipped with the system. Dust surface of control panel near the LCD with a dry cloth (if necessary, use a non-abrasive cleaner), peel the backing off of the label, and firmly press it on the panel.

The Function menu (see right) and its submenus access the following modes and functions:

```
Select a Function:
* Change
* Virtual Matrix
* Status
* Disconnect
* Setup Options
  * Software Version
  * Default VM
  * Reload Config
  * VIS Config
  * Change Password
* Lock Panel
* Adjust Audio
  * Output Volume
  * Mute/Unmute
  * Input Gain
* Global Preset
  * Execute Global
  * Define Global
```

Function menu structure

Change

Selecting Change places the system in Change Mode. The Control Panel must be in Change Mode to execute switches. While in Change Mode, select the Input and Output(s) Keys followed by the Take Key to execute switches (see page 47).

Virtual Matrix

Selecting the Virtual Matrix Mode accesses the three routing levels (virtual matrices) supported by the Octaire that route audio-follow-video signals (All), breakaway video signals (Video), and breakaway audio signals (Audio). While in the Virtual Matrix Mode, the virtual matrix / routing level needed to perform operations can be changed (see page 48).

Status

Selecting Status places the system in Status Mode. While in Status Mode, signal routing or routing to multiple outputs can be confirmed without risk of accidentally executing a switch (see page 50).

Disconnect

Selecting Disconnect places the system in Disconnect Mode. While in Disconnect Mode, select the Input or Output Key(s) followed by the Take Key to disconnect switches (see page 49). While in Disconnect Mode, the Control Panel does not indicate the current routing of selected inputs or outputs.

Setup Options

Selecting Setup Options (see page 59) accesses the Setup Options submenu to check the Software Version, change the Default virtual matrix, to enable VIS (Vertical Interval Sync), reload the configuration file (when directed by technical support), and change the password.

Lock Panel

Selecting Lock Panel places the panel in Lock Mode at which time the password is entered to lock the panel. Locking the Control Panel limits access which can prevent accidental switches (see page 57).

Adjust Audio

Selecting Adjust Audio accesses the Adjust Audio submenu. From this menu you can place the panel in Output Volume Mode, Mute/Unmute Mode, or Input Gain Mode (see page 53).

Global Preset

Selecting Global Preset accesses the Global Preset submenu to Execute Global Presets or Define Global Presets (see page 51).

Octaire Control Panel operations consist of the following four basic tasks:

- **Choosing a mode, submenu, or list:** press the Function Key to access the Function menu. Use the Control Dial and Select Key to choose the desired mode, submenu, or list.
- **Selecting**
Inputs or outputs: press the corresponding Input or Output Key. Selected keys will change color or flash, depending on the routing state.
Values for fields (such as routing levels, volume, or preset values): use the Control Dial and Select Key.
- **Executing a command:** press the Take Key.

Labeling Input and Output Keys

Each Octaire system ships with a kit for custom labeling. Additional kits may be ordered separately. The Octaire Control Panel Label Kit (KA1044-01) includes:

- **Perforated card stock sheets** – Print, separate labels, and slide into holders.
- **Label holders** – Attach to the front panel above each row of Input and Output Keys.
- **LCD Function menu label** – Shows entire LCD menu structure (see Note on previous page).

The label template (an .xlt template formatted in Microsoft Excel) for labeling the input and output keys is included on the *AMX AutoPatch CD* and is available at www.amx.com.

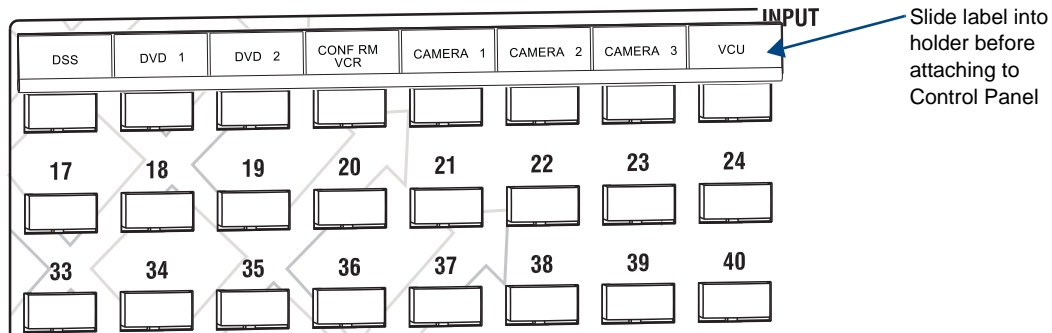


FIG. 32 Custom labels

Tip: When the labels are ready to print, we recommend printing a sample on plain paper first.

To create and install labels for Input and Output Keys:

1. From the *AMX AutoPatch CD*, launch the Label Form Spreadsheet.xlt file.
2. Type the labels in the pre-formatted cells on the template according to the instructions in the template (if desired, use standard Excel editing tools to alter font size, spacing, color, etc.).
Do not modify the cell size.
3. Save the file for future use (recommended).
4. Print the labels on the perforated sheets provided, using any standard laser printer.
5. Trim off the excess label insert material where indicated.
6. Separate the label strips at their perforations (bend both ways first).
7. Slide the first label strip into a plastic label holder (position with open edge of holder up).
8. Peel the adhesive backing off the label holder and press the holder firmly onto the control panel above the appropriate Input or Output Keys. The silk screened labels on the front panel will aid in label holder alignment.
9. Repeat Steps 7 and 8 for the remaining labels.

Executing Switches

A switch is an active connection between an input (source) device and one or more output (destination) devices. The signals connected in a switch command are individual signals or groups of individual signals coming through the connectors on the rear of an enclosure. You can execute switches from the Control Panel using the steps below or by defining and executing a global preset (see page 51).

When executing a switch, you must specify the routing level (Virtual Matrix) that includes all the signals you want to route. The LCD displays All, Video, or Audio in the upper-right corner. If you need to change the routing level, see “Changing Virtual Matrices / Routing Levels” on page 48.

Note: When you put the panel in Change Mode, available keys will be blue and any unavailable ones will not be illuminated. The first blue key selected flashes white and the next key(s) selected turns white. You can toggle the non-flashing white keys between the selected (white) and unselected (blue) state before pressing the Take Key. For an example, see FIG. 31 on page 44.

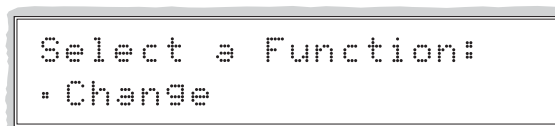
In an execute switch command either an input or an output can be selected first. To switch to multiple outputs, the Input Key *must* be selected first. With the Octaire Control Panel you can select and unselect Input and Output Keys to modify the switch as long as the keys are not flashing. Once satisfied with the switch selections, press the Take Key to execute it. (If you are not satisfied with the selections, press the Cancel Key and start over.)

For new installations, we recommend executing a test switch to verify the system is working correctly before attaching all inputs and outputs. To execute a test switch, attach the first input (source) and first output (destination) and then complete the directions below. Depending on the signal type (e.g., component signals), you may need to attach multiple input and output connectors. For more information on test switches, see the “Installation and Setup” chapter (see page 30).

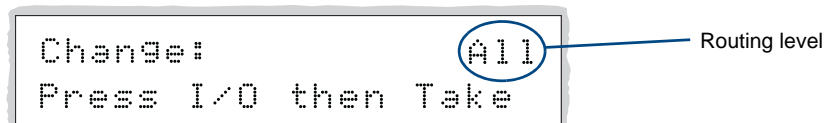
The directions below switch Input 1 to Output 1 on the currently selected routing level.

To execute a test switch:

1. Press the Function Key.
The Function menu appears.



2. Press the Select Key to choose Change.
The system is in Change Mode (the available Input and Output Keys turn blue).



3. Press Input Key 1.
Input Key 1 flashes indicating that it is ready to switch.
(Any outputs currently connected to Input 1 will turn white).
4. Press Output Key 1.
Output Key 1 illuminates indicating that it is ready to accept the switch.
5. Press the Take Key.
Input 1 switches to Output 1, and the keys turn blue.
The panel remains in Change Mode until the Function Key is pressed.

Changing Virtual Matrices (Routing Levels)

The Octaire system supports three routing levels (virtual matrices) for switching signals:

All (Audio-follow-Video), Video, and Audio.

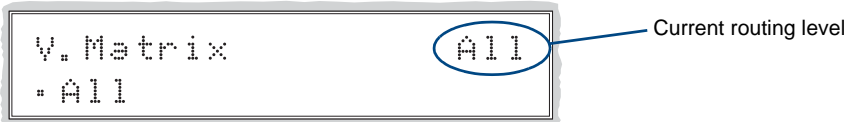
Occasionally you may need to execute switches (or perform other operations) using a routing level other than the current one. The directions below give the steps to change from routing signals on All to routing on Audio.

To change the virtual matrix (routing level):

1. Press the Function Key.
The Function menu appears.
2. Locate Virtual Matrix by scrolling with the Control Dial.



3. Press the Select Key.
The V.Matrix list appears.



4. Scroll the Control Dial to Audio.



5. Press the Select Key to enter your selection.
The display returns to the top of the V.Matrix submenu.
Audio becomes the new routing level used for all operations.



6. Press the Function Key to return to the Function menu.
The system is ready to perform operations on the Audio routing level. The system will remain on Audio for all operations until the routing level is changed or the power is cycled (at which time the Control Panel will switch on the default routing level).

Note: To change the default virtual matrix, see the instructions on page 60.

Disconnecting Switches

Disconnecting a switch deactivates the connection between an input (source) and one or more output (destination) devices. Disconnecting an input will disconnect all outputs currently receiving the input's signal. An output can only be connected to one input; therefore, disconnecting an output will only disconnect the connection between the output and the input that is routed to it. Inputs and outputs can be selected in the same disconnect command.

You can disconnect inputs or outputs from the Octaire Control Panel using the steps below. If you need to change the routing level, see “Changing Virtual Matrices (Routing Levels)” on page 48.

Note: When you put the panel in Disconnect Mode, available keys will be blue and any unavailable ones will not be illuminated. When you select a blue key, it turns white. You can toggle the keys between the selected (white) and unselected (blue) state before pressing the Take Key. For an example, see FIG. 31 on page 44.

Once the Control Panel is in Disconnect Mode, inputs and outputs can be selected and unselected by pressing the corresponding Input and Output Keys. Pressing the Cancel Key clears an incomplete disconnect command and returns the display to the beginning of the submenu. The disconnect command is not executed until the Take Key is pressed.

While in Disconnect Mode, the Octaire Control Panel will not show current routing for the inputs and outputs that are selected.



Caution: Disconnecting an input disconnects all outputs receiving that source signal even if a specific output(s) is selected at the same time.

The example below disconnects Inputs 1 and 3 and all outputs connected to them as well as Output 9.

To disconnect inputs and outputs:

1. Press the Function Key.
The Function menu appears.

```
Select a Function:
• Change
```

2. Locate Disconnect by scrolling with the Control Dial.

```
Select a Function:
• Disconnect
```

3. Press the Select Key.
The system is in Disconnect Mode (all the available Input and Output Keys turn blue).
4. Press Input Keys 1 and 3 and Output Key 9.
The keys turn white indicating that they are selected.

```
Disconnect: Video
Press I/O then Take
```

Routing level

5. Press the Take Key.
Inputs 1 and 3 (and all outputs connected to them) and Output 9 are disconnected as soon as the Take Key is pressed, and the keys turn blue.
6. Make additional disconnects.
Or press the Function Key to return to the Function menu.

Verifying Signal Status

Signal status can be verified to confirm that a switch has executed properly or to confirm correct routing to multiple outputs (destinations). Verifying an input will illuminate all outputs currently receiving the input's signal. An output can only be connected to one input (source); therefore, verifying the status of an output will illuminate only the one input that is currently routed to it.

The status of inputs or outputs can be checked using the Octaire Control Panel. Once the Control Panel is in Status Mode, inputs and outputs can be selected by pressing the corresponding Input and Output Keys without changing the routing state. The panel stays in Status Mode until the Function Key is pressed.

To verify signal status on a different routing level, see “Changing Virtual Matrices (Routing Levels)” on page 48.

To verify the status of a signal:

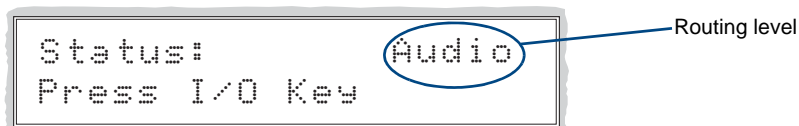
1. Press the Function Key.
The Function menu appears.



2. Locate Status by scrolling with the Control Dial.



3. Press the Select Key.
The system is in Status Mode (all available Input and Output Keys turn blue).



4. Press the Input Key that corresponds to the input you want to check.
The selected Input Key turns white, and any Output Keys receiving the input signal also turn white.
Or
Press the Output Key that corresponds to the output you want to check.
The selected Output Key turns white, and any Input Key routed to it also turns white.
5. Select another signal to verify.
Or
Press the Function Key to return to the Function menu.

Defining and Executing Global Presets

Global presets are predefined sets of switches that can easily be executed at one time. The Octaire Control Panel supports up to 64 global presets. A global preset number can be assigned to a routing state during runtime and stored by the system, allowing you to replicate an entire system state. (The system state includes audio volume/gain settings and all signal routings.) That system state can be restored at any time by selecting the assigned global preset number. Global presets can be defined or recalled using either the Octaire Control Panel or BCS commands interchangeably.

Defining Global Presets

A global preset is a snapshot of an entire system's state which enables that system state to be recalled at a later time. Before defining a Global Preset, route the system to the desired state (including audio settings if applicable).

All 64 global preset numbers are displayed in the Global Preset submenu, even if the numbers do not correspond to a defined global preset. Be aware that there is no way to distinguish a Global Preset number that has been assigned to a routing state from an undefined Global Preset.



Caution: We *strongly* recommend keeping track of the number and the system state routing used for each global preset. If a previously used number is assigned to another system state (using either the Octaire Control Panel or BCS commands), the former state will be automatically overwritten.

The example below defines Global Preset 3, and the example on the next page executes Global Preset 3.

Important: Wait approximately ten seconds for the system to permanently store the global preset setting before performing another operation.

To define a global preset:

1. Route the system to the desired state.
2. Press the Function Key.
The Function menu appears.
3. Locate Global Preset by scrolling with the Control Dial.

```
Select a Function:
* Global Preset
```

4. Press the Select Key.
The Global Preset submenu appears.

```
Global Preset:
* Define Global
```

5. Scroll the Control Dial to Define Global.
Press Select Key.
The Define Global list appears.

```
Define Global:
* 1:Global Preset 1
```

6. Scroll the Control Dial until Global Preset 3 appears.



7. Press either the Select Key or the Take Key.
8. Wait approximately ten seconds for the system to store the global preset setting.
The current routing state can now be recalled as Global Preset 3, and the system returns to the Global Preset submenu.
9. Press the Function Key to return to the Function menu.

Executing Global Presets

To execute a global preset:

1. Press the Function Key.
The Function menu appears.
2. Locate Global Preset by scrolling with the Control Dial.
3. Press the Select Key.
Execute Global appears.
4. Press the Select Key.
Execute Global Preset list appears.



5. Scroll the Control Dial until Global Preset 3 appears.



6. Press either the Select Key or the Take Key.
Global Preset 3 is executed.
The system returns to the Global Preset submenu.
7. Press the Function Key to return to the Function menu.

Note: *Status is not invalidated by global presets.*

Adjusting Audio

If your Octaire system routes audio, the control panel supports volume control, and adjustments may be made at any time during normal operation. Audio adjustments are made in real time as the Control Dial is turned and remain in effect until changed.

The Adjust Volume Screen displays the current volume setting and the range available for the specific audio output signal that has been selected for adjustment. The Adjust Input Gain Screen displays the current gain setting and the range available for the specific audio input signal that has been selected for adjustment. For more information on audio signals and specifications, see the “Signal Types” chapter on page 39.

When audio is adjusted for a source or destination switching on “All,” the adjustment remains in effect for that source or destination when it is switched on “Audio” and vice versa.

Important: For Octaire systems, the total through-system gain (the amount of input gain plus the amount of output gain) specified for any input/output routing path cannot exceed 10 dBr. If you enter a volume (gain) command that exceeds 10 dBr when it is combined with the gain of an input, the command will be accepted (and will be indicated in status results) but will not result in an audible difference of more than 10 dBr.

When the panel is placed in any of the Audio Modes, available keys will be blue and any unavailable ones will not be illuminated. When you select a blue key, it turns white indicating that it is ready for the audio adjustment. Audio adjustments are made with the Control Dial and do not require pressing the Take Key.

You can adjust output volume, mute outputs, and adjust input gain from the Octaire Control Panel using the steps below and on the following pages.

Adjusting Output Volume

To adjust the volume:

1. Route the destination (output) to be adjusted to the source (input); see page 47.

Note: Audio adjustments can be made without routing the switch.

2. Press the Function Key.
The Function menu appears.

```
Select a Function:
* Change
```

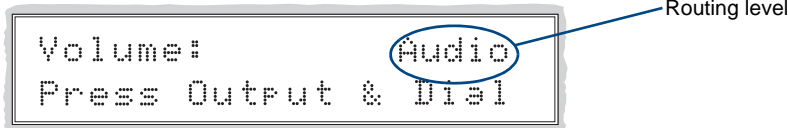
3. Locate Adjust Audio by scrolling with the Control Dial.

```
Select a Function:
* Adjust Audio
```

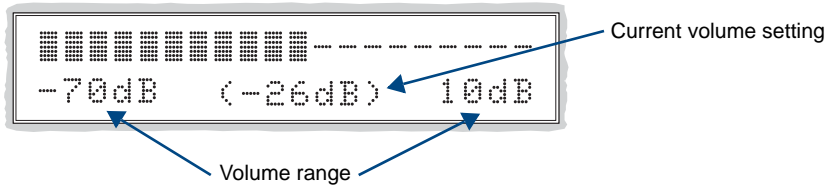
4. Press the Select Key.
The Adjust Audio submenu appears.

```
Adjust Audio:
* Output Volume
```

- Press the Select Key again to choose Output Volume.
The panel is in Output Volume Mode (all Input Keys are turned off, and the available Output Keys turn blue).



- Press the Output Key that corresponds to the output to be adjusted.
The Adjust Volume Screen appears, displaying the volume range of the audio signal and the current volume setting for the selected output.



- Adjust the volume by scrolling with the Control Dial.
The volume audibly adjusts as you scroll the Control Dial.
- Select another output to adjust.
Or press the Cancel Key to return to the Adjust Audio submenu. (The Cancel Key does not undo the audio adjustments.)
Or press the Function Key to return to the Function menu.

Note: If the selected output is muted, "Muted" displays as the current setting (FIG. 33). Turning the Control Dial will un-mute a muted output and adjust the Volume.



FIG. 33 Example of muted output in Output Volume Mode

To reapply mute, see the following.

Muting and Un-muting Outputs

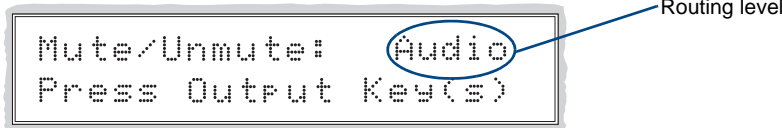
Note: The mute/un-mute option applies to output volume only and is not available for input gain.

To mute an output:

- Press the Function Key.
The Function menu appears.
- Locate Adjust Audio by scrolling with the Control Dial.
- Press the Select Key to enter the selection.
The Adjust Audio submenu appears.
- Scroll the Control Dial to Mute/Unmute.



5. Press the Select Key.
The system is in Mute Mode (all Input Keys are turned off, and the available Output Keys turn blue), and any muted Output Keys turn white.



6. Press the Output Key that corresponds to the output to be muted.
The output is muted, and the Output Key turns white.
7. Select another output to mute.
Or press the Cancel Key to return to the Adjust Audio submenu. (The Cancel Key does not undo the audio adjustments.)
Or press the Function Key to return to the Function menu.

To un-mute an output while in Mute Mode:

1. Press the muted (white) Output Key.
The output is un-muted, and the Output Key turns blue.

Adjusting Input Gain

The purpose of “Input Gain Control” is to allow input (source) signals of varying amplitudes to be equalized before they are routed and the volume is adjusted. Equalizing input signals provides a consistent reference for volume adjustments and eliminates jumps when routing between different inputs.

Typical uses for input gain (the nominal level of the signal from the source device) include switching consumer and professional grade audio equipment (whose levels can vary noticeably) in the same matrix switcher. Input gain adjustment is also used for equalizing amplitudes between balanced and unbalanced source inputs.



Caution: *We strongly recommend that input gain adjustments be made only by a qualified dealer or installer.*

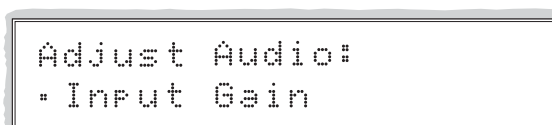
The following steps tell how to adjust input gain as part of the process of equalizing input levels.

To adjust input gain:

1. Route the source (input) to be adjusted to the destination (output); see page 47.

Note: *Audio adjustments can be made without routing the switch.*

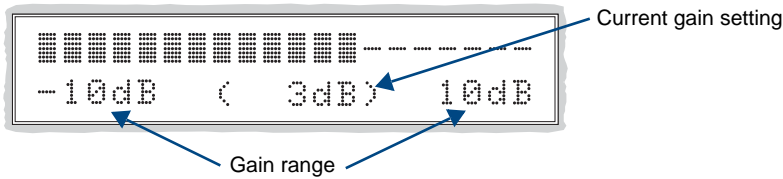
2. Press the Function Key.
The Function menu appears.
3. Locate Adjust Audio by scrolling with the Control Dial.
4. Press the Select Key to enter the selection.
The Adjust Audio submenu appears.
5. Scroll the Control Dial to Input Gain.



6. Press the Select Key.
The system is in Input Gain Mode (the available Input Keys turn blue, and all Output Keys are turned off).



7. Press the Input Key that corresponds to the source that was routed in Step 1.
The Adjust Input Gain Screen appears, displaying the gain range of the audio signal and the current gain setting.



8. Adjust the input gain by scrolling with the Control Dial.
The gain audibly adjusts as you scrolling the Control Dial.
9. Repeat Steps 1 through 8 as necessary for additional sources (inputs) that will be routed to the same destination (output).

Locking and Unlocking

Locking the Octaire Control Panel prohibits access to the system and can prevent accidental switching. While the panel is locked, BCS commands still work; however, they cannot be used to unlock the panel. The panel remains locked if the power is cycled.

The password used to lock and unlock the panel consists of a sequence of five input keys. The factory default password is the first five Input Keys (1-2-3-4-5). A new password can be set using any combination of five keys from Input 1 through Input 8 (for instructions, see page 62).

Important: *We strongly recommend recording passwords in a secure place; the Octaire system cannot retrieve a lost password.*

If the password is lost while the system is locked, contact technical support (see page 31).

Locking the Control Panel

If you enter the wrong password while attempting to lock the Control Panel, the LCD displays “Invalid Password” and the Cancel Key flashes. Press the Cancel Key to clear the error and enter the correct password.

Note: *For security purposes, the Input Keys do not turn white when pressed while locking and unlocking the panel.*

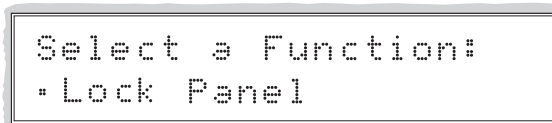
To lock the Control Panel:

1. Press the Function Key.
The Function menu appears.



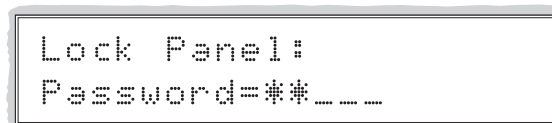
```
Select a Function:
• Change
```

2. Locate Lock Panel by scrolling with the Control Dial.



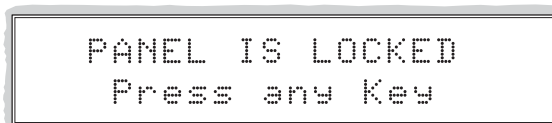
```
Select a Function:
• Lock Panel
```

3. Press the Select Key.
The system is in Lock Mode (Input Keys 1 through 8 turn blue).
4. Press the Input Keys in the following order: 1, 2, 3, 4, 5 (default password).



```
Lock Panel:
Password=**_ _ _
```

The panel is locked, and all Input and Output Keys turn off.



```
PANEL IS LOCKED
Press any Key
```

Unlocking the Control Panel

When the panel is locked and you press any key, the Unlock Panel Screen appears and you have ten (10) seconds to enter the password, or the Control Panel remains locked. If you wait longer than 10 seconds, press any key again before entering the password.

If you enter the wrong password while attempting to unlock the Control Panel, an invalid password message appears and the Cancel Key flashes. Press the Cancel Key to clear the error and enter the correct password.

To unlock the Control Panel:

1. Press any key.
The Unlock Panel Screen appears, and (Input Keys 1 through 8 turn blue).
You *must* enter the password within ten (10) seconds.



2. Press the Input Keys in the following order: 1, 2, 3, 4, 5 (default password).
The panel unlocks and returns to the Function menu.

Setup Options

The following options are available under the Setup Options submenu:

- **Software Version** – to display software version information for the Control Panel
- **Default VM** – to change the factory default virtual matrix (routing level)
- **Reload Config** – is not used in normal operations; use only when directed to do so by technical support
- **VIS Config** – to enable or disable Vertical Interval Sync
- **Change Password** – to change the password from the factory default

Software Version

The Software Version Screen provides the following information:

- **Driver** – Control Panel's firmware version
- **Built** – date the Control Panel's software was built
- **Host** – software version of the initial operating system (IOS) for the Control Panel
- **XNet ID** – Control Panel's XNet device number

Use the following steps to check the software version information for the Octaire Control Panel.

To check the software version information:

1. Press the Function Key.
The Function menu appears.

```
Select a Function:
* Change
```

2. Locate Setup Options by scrolling with the Control Dial.

```
Select a Function:
* Setup Options
```

3. Press the Select Key.
The Setup Options submenu appears.
Locate Software Version by scrolling with the Control Dial.

```
Setup Options:
* Software Version
```

Press the Select Key again to choose Software Version.
The Software Version Screen appears.

```
Software Version:
* Driver: v.a. b. c
```

Version number

4. Scroll the Control Dial to see additional Software Version information.
5. Press the Cancel Key to return to the Setup Options submenu.
Or
 Press the Function Key to return to the Function menu.

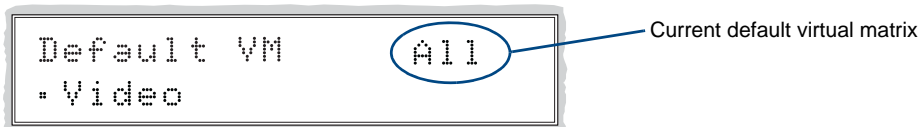
Default Virtual Matrix

The factory default virtual matrix (routing level) for the Octaire is All (Audio-follow-Video). You have the option of changing the factory default virtual matrix for your system. When you choose a new default virtual matrix, the system will revert to that virtual matrix each time the system is powered up even if you changed the virtual matrix using the V. Matrix list during normal operation. The power must be cycled before the default virtual matrix changes are implemented. If you want to immediately switch on the default matrix, either change the current virtual matrix (see page 48) or cycle the power.

The following example changes the default virtual matrix (routing level) from “All” to “Audio”.

To change the default virtual matrix (routing level):

1. Press the Function Key.
 The Function menu appears.
2. Locate Setup Options by scrolling with the Control Dial.
3. Press the Select Key.
 The Setup Options submenu appears.
4. Scroll to Default VM.
 Press the Select Key.
 The Default VM list appears.



5. Scroll to Audio.



6. Press the Select Key.
 The display returns to the top of the Setup Options submenu.
7. Cycle power to implement “Audio” as the default virtual matrix.
Or
 Change the virtual matrix (see page 48) to immediately perform operations on the new default virtual matrix without cycling power. (The next time power is cycled, “Audio” will be implemented as the default virtual matrix.)

Vertical Interval Sync (VIS) Config

The system must be configured with the Control Panel before it is capable of switching vertical interval sync signals. For instructions on connecting VIS cables to enclosure(s), see page 32 in the “Installation and Setup” chapter. After attaching the cables to the connectors and setting the VIS toggle switches on the CPU, enable VIS using the following steps.

To enable VIS:

1. Press the Function Key.
The Function menu appears.

```
Select a Function:
* Change
```

2. Locate Setup Options by scrolling with the Control Dial.

```
Select a Function:
* Setup Options
```

3. Press the Select Key.
The Setup Options submenu appears.
Locate VIS Config by scrolling with the Control Dial.

```
Setup Options:
* VIS Config
```

4. Press the Select Key.
The VIS status displays.

```
VIS:
* Disabled
```

5. Use the Control Dial to change setting to VIS Enabled (if setting is on VIS Disabled).
Press the Select Key to choose VIS Enabled.

```
VIS:
* Enabled
```

If the enabling request is successful, the LCD returns to the Setup Options submenu. If the enabling request fails, the LCD will display an error message. For information on error codes, see page 64.

6. Press the Function Key to return to the Function menu.

Setting the Password

The Octaire’s default password is “1 2 3 4 5” entered using the first five input keys. A new password can be set using any combination of five of the Input Keys 1 through 8 when the LCD displays “Enter New PWD” (Step 5). In the Change Password Mode (selected in Step 4), the keys available to use in a password will illuminate blue.

Important: *We strongly recommend recording the new password in a secure place; the Octaire system cannot retrieve a lost password.*

If the password is lost while the system is locked, contact technical support (see page 31).

To set the password:

1. Press the Function Key.
The Function menu appears.



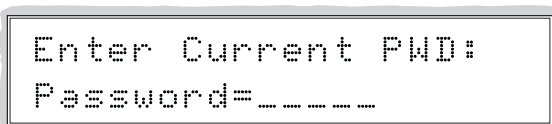
2. Locate Setup Options by scrolling with the Control Dial.



3. Press the Select Key.
The Setup Options submenu appears.
Locate Change Password by scrolling with the Control Dial.



4. Press the Select Key.
Enter Current PWD appears.
Using the illuminated keys, input the current password. (The default password is 1 2 3 4 5).



5. The LCD displays Enter New PWD.
Using any combination of the illuminated keys, input the new password.
(To change any entries, press the Cancel Key – restarting the process – and reenter.)



The LCD displays Reenter New PWD.

A rectangular LCD display with a double-line border. The text is in a monospaced font and reads: "Reenter New PWD:" on the first line and "Password=_____" on the second line.

6. Re-enter the new password.

If the re-entered password matches, the system accepts it as the new password, and the LCD displays Password Reset. Press the Take Key and go to Step 8.

A rectangular LCD display with a double-line border. The text is in a monospaced font and reads: "PASSWORD RESET" on the first line and "Press Take" on the second line.

If the re-entered password does not match, the LCD displays Invalid Password. Press the Cancel Key to return to Enter New PWD screen and repeat Steps 5 through 7.

A rectangular LCD display with a double-line border. The text is in a monospaced font and reads: "INVALID PASSWORD" on the first line and "Try Again" on the second line.

7. When the new password is successfully reset, press the Cancel Key to return to the Setup Options submenu.

Or

Press the Function Key to return to the Function menu.

System Error Codes and Troubleshooting

This section provides an overview of the most common error codes that may appear on an Octaire Control Panel. The table below lists the error code, the name of the code, the meaning of the code, and some basic troubleshooting strategies (additional troubleshooting strategies are included on page 65). The codes in the table are not intended to be comprehensive. If an error code appears that is not listed, note the specific number and contact technical support (see page 31).

The first letter of the error code indicates the following:

- E = Error
- W = Warning
- A = Alarm* (requires immediate attention)
- I = Information*

* Because these codes very rarely appear, they are not included in the table.

For the following instructions, use HyperTerminal on an external controller (see page 25).

To enable error code reporting:

1. Enter \$ERR=1 !
System responds with V

Note: If the power is cycled, you will need to enable error code reporting again.

To turn off error code reporting:

1. Enter \$ERR=0 !

Most Common System Error Codes			
Error Codes	Name	Meaning	Troubleshooting Strategies
E01000A	Enclosure timeout error	One or more of the enclosures in a multi-enclosure system did not acknowledge a control operation command.	<ul style="list-style-type: none"> • Resend the command. • Check the Status LED on the rear of each enclosure. If any are red, contact Technical Support. • Check the power indicators. • Check the link connections between enclosures.
EFF8002	Enclosure timeout error	The operation was not completed before the timer expired.	<ul style="list-style-type: none"> • Resend the command. • Check the power indicators. • Check the link connections in multi-enclosure systems. • Check that the command was sent using the correct routing level (All, Video or Audio).
E01DFFF	Audio request error	A volume or gain request was made on the Video routing level.	<ul style="list-style-type: none"> • Resend the command on All or Audio.
W010005	Sync timeout warning	The system did not receive the vertical interval sync signal. Note that the switch occurred, but not at the sync interval.	<ul style="list-style-type: none"> • Resend the command. • Check the sync cable connections. • Check the Control Panel to verify that sync is enabled (see page 61). • Check that the sync signal from the generator is being received by the system.

Troubleshooting

Error codes can appear either on the control panel's LCD or in a terminal emulation program, such as HyperTerminal.

When you are using a control panel, one of the most common troubleshooting strategies is to resend the command to see if the error was simply a timeout error.

When you are using BCS commands, one common troubleshooting strategy is to enter the command again. Often the command has simply been entered incorrectly (e.g., omitting an output in a Change command). In other cases, the command has specified a value that is not valid (e.g., entering a decibel value in an adjust volume command that is outside the volume range for the audio signal).

If the error code persists after correcting and resending the command, contact technical support (see page 31).

APWeb – Initial Setup by Network Admin

Overview

Applicability Notice: The APWeb information in this manual covers APWeb Version 1.6.0. (The version number is in the upper right on the Home page.)

The APWeb server delivers HTML pages and Java applets, which allow for remote control and diagnostics of an AMX AutoPatch Routing System using PC-based Internet browsing software. In addition, one of the pages opens a Telnet server, providing a standard terminal interface for entering AMX AutoPatch BCS (Basic Control Structure) commands.

The primary enclosure (the one with the control panel) on the Octaire system is connected via an RJ-45 link cable to a LAN (Local Area Network), the Internet, or a network card in a PC (which could then connect to a LAN or the Internet). For installation and link cable information, see page 35.

Note: *A single PC can access multiple AMX AutoPatch Routing Systems, as long as each system has TCP/IP capability (e.g., the Octaire or an APWeb expansion board on an Optima); each APWeb server must be assigned a unique IP address and a custom site name. Furthermore, each system can contain multiple enclosures, as long as it is configured as a single system.*

The APWeb server can also function as a Tunneling Access Point (TAP). As a TAP, it can be used to control a system (e.g., with third party controllers) using any software that supports BCS protocol over TCP/IP.

The APWeb interface information is divided into three chapters.

This first chapter provides APWeb setup information for the Network Administrator doing the initial setup or ongoing server maintenance. It includes information on:

- Opening the APWeb server
- Changing the server's configuration properties
- Setting user names and passwords
- Testing control operations
- Customizing the site and the control options
- Defining routing levels (manually configuring virtual matrices)
- Handling security issues
- Controlling the system

The second chapter, "APWeb – Controlling the Octaire," contains instructions for the person controlling an Octaire through an APWeb server after the setup is complete. We suggest making a copy of this control chapter to give to the user, along with the user name and password that you set for them.

The third chapter, "APWeb – Additional Info for Network Admin," covers the advanced topics of embedding the XBar applet and changing the proxy setting.



Caution: *We strongly recommend a Network Administrator set up the system even if DHCP (Dynamic Host Configuration Protocol), gateways, firewalls, etc. are not being used.*

System Requirements

- PC with Windows XP Professional®, Windows 2000®, or Windows NT®
- Web browser (Internet Explorer, Firefox, Netscape, etc.)
- JRE v1.4.x or greater (Java Plug-in for the XBar Controller)

Design Requirement

AMX highly recommends deploying only one APWeb server per system. Any configuration violating this recommendation may not be backed by the technical support agreement. APWeb offers a single, remote access point to a system, and its interactions with that system can cause interference and collision issues if more than one APWeb server is present.

Note: *The instructions in this chapter assume that all of the AMX AutoPatch devices in the system are connected and powered up.*

Opening the APWeb Server

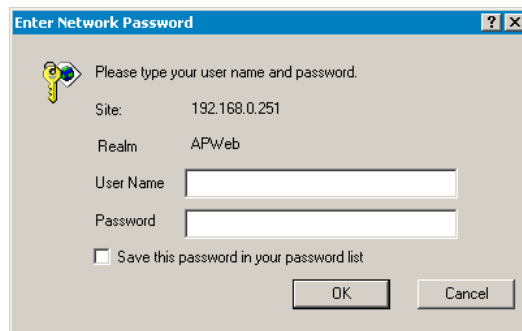


Caution: *We strongly recommend that the APWeb server site be placed inside your network firewall and that system security be turned on.*

A worksheet to record connection information is provided at the end of this chapter (see page 86).

To set up the APWeb server:

1. Follow the directions on page 35 for connecting the TCP/IP connector on the Octaire's CPU to a LAN or to a network card in a PC.
2. Launch a browser on your PC.
3. Type **http://192.168.0.251** (the default APWeb IP address) in the address bar of the browser and press Enter.
The Enter Network Password dialog box opens.



Note: *If the Enter Network Password dialog box does not open, see page 93 for troubleshooting strategies.*

4. Enter the (case sensitive) default admin user name: **super**
5. Enter the (case sensitive) default admin password: **super**
6. Click OK.
APWeb opens to the Home page for the Network Administrator.
(The user's Home page has limited access and can be opened by entering the default user name and password of **none** and **none**, i.e., the character string **n-o-n-e**.)

Overview of the Admin Home Page

APWeb’s Admin Home page has links for complete site access, while the links on the user’s Home page are limited to control access. The Admin Home page displays information on the system’s routing levels (referred to as virtual matrices or VMs on APWeb) and the number of currently defined macros (defined in APWeb). It also displays information regarding the discovery of hardware devices during bootup if this feature is enabled.

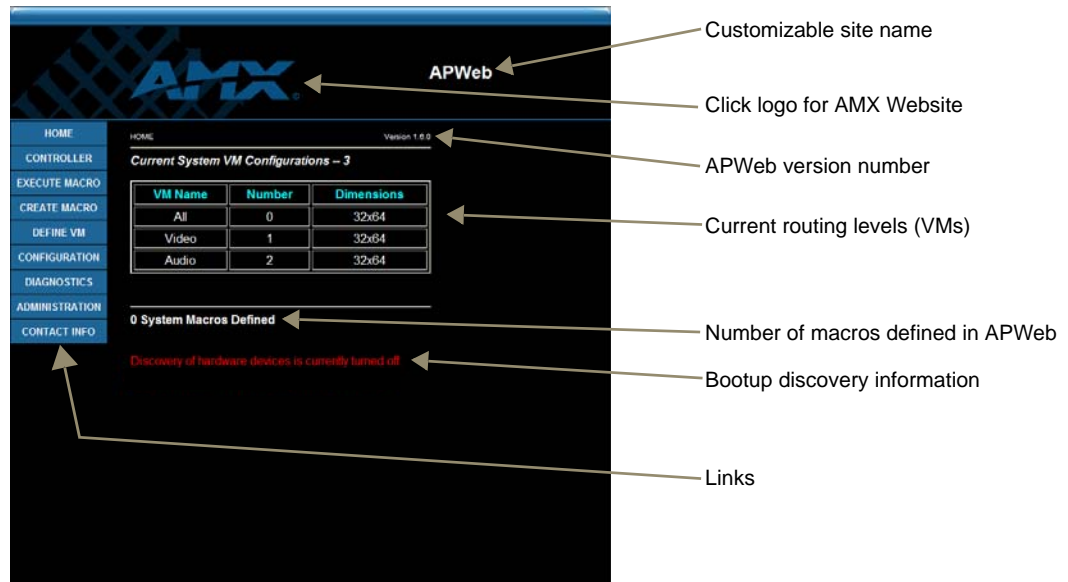


FIG. 34 Admin Home page

Important: Use the links to navigate the APWeb site, do not use the Back function in the Browser to navigate between pages.

The links on the left side of the Home page access the pages listed below:

Link	Page	Function
Home	Home	The main page in the APWeb site
Controller	XBar Controller	The controller interface for executing and disconnecting switches (page 82) and adjusting audio (page 83)
Execute Macro	Execute Macro	For executing macros (page 85)
Create Macro	Create/Edit Macro	For creating or deleting macros (page 77)
Define VM	Define VM (manual configuration)	For manually defining or deleting routing levels (page 78)
Configuration	APWeb Configuration	For specifying site settings, such as display parameters (page 76) and the site name (page 74), and for enabling features
Diagnostics	Diagnostics	For sending a test BCS command (page 73) or launching a Telnet session to enter BCS commands (page 81)
Administration	APWeb Administration	For accessing Account Profile (user names and passwords) and Site Security information (page 71); it also includes the enable/disable services preferences (page 74) and the IP address and port settings (page 70)
Contact Info	Contact Information	Displays the AMX address, phone and fax numbers, and website link

Setting a Static IP Address

The current (default) IP address is displayed on the APWeb Configuration page under the section for Current APWeb Settings. A field is provided on the APWeb Administration page under Configure APWeb Settings for entering a static IP address.

FIG. 35 APWeb Configuration page

Note: The APWeb Configuration page also includes fields for additional settings and bootstrap operation options (see page 75).

To enter a static IP address:

1. From any page in the site, click the Administration link.
2. Under Configure APWeb Settings, enter the static IP address in the IP Address field.
3. Click Apply; click OK when prompted to reboot.

Important: Any time you select “Reboot” as an option from the APWeb Configuration page or from any dialog box opened from the APWeb site, the APWeb server reboots. The reboot may update information between the Octaire and the APWeb server. The Octaire system itself does not reboot.

Using a DHCP IP Address (Optional)

The APWeb server offers the option of using a DHCP (Dynamic Host Configuration Protocol) IP address (must be on a network that contains a DHCP server). The settings on the APWeb Configuration page will typically be for a fixed or static IP address.

To force invocation of a DHCP IP address:

1. From any page in the site, click the Administration link.
2. Under Configure APWeb Settings, enter 0.0.0.0 in the IP Address field.
3. Click Apply.
4. Click OK when prompted to reboot. The APWeb server begins searching for a DHCP server. If the search times out, the address will revert to the default APWeb IP address (192.168.0.251). (If the computer is on the same subnet, use the AutoUpdate.exe program on the AMX AutoPatch CD to see the IP address to connect to.)

Setting Admin and User Account Logins

For security purposes, we recommend that the Network Administrator set the account profiles as part of the initial setup.

APWeb uses HTTP basic access authentication with dual access (i.e., the Network Administrator account and the User account each has its own user name and password). Resetting the account profiles (see page 81) requires physical access to the system. If further security is required, we recommend locking the enclosure(s) in a secure location. User names and passwords are sent in clear text over the network, thus leaving them vulnerable to network sniffers. We also recommend deploying APWeb in a secure LAN environment. To allow remote Internet access, you will need to configure your LAN firewall.

The APWeb connection on the CPU is configured at the factory with a default login for the Network Administrator and another one for the user. APWeb's Account Profile / Site Security page is accessed by clicking the Authentication button on the APWeb Administration page.

Note: System security can also be turned on and off at the Account Profile / Site Security page (see page 80).

FIG. 36 Account Profile / Site Security page

Default User Name and Password

- Administration Account Login – **super** and **super**
- User Account Login – **none** and **none** (the character string **n-o-n-e**)

User and Admin names and passwords are case sensitive with a maximum length of 24 characters. The user name for the Administration Account Login and for the User Account Login *must* be different; however, the passwords can be the same for both.

The following steps assume this is the first time the Account Profile has been changed. If it is not, use the current user name and password instead of the defaults.

To set the User Account Login and the Admin Account Login:

1. From any page in the site, click the Administration link.
2. Under Account Profile / Site Security, click Authentication.
The Account Profile / Site Security page opens.

3. Enter the new user name in the New Username field.
4. Enter the new password in the New Password field, and confirm by reentering it in the next field.
5. Click Submit.
6. Under Change Administration Account Login, enter **super** in both the Admin Username and Admin Password fields, and then enter the new information in the applicable fields.
7. Click Submit.

Executing a Test Switch with the XBar

We recommend executing a test switch with the XBar Controller (see below) or with BCS commands (see page 73).

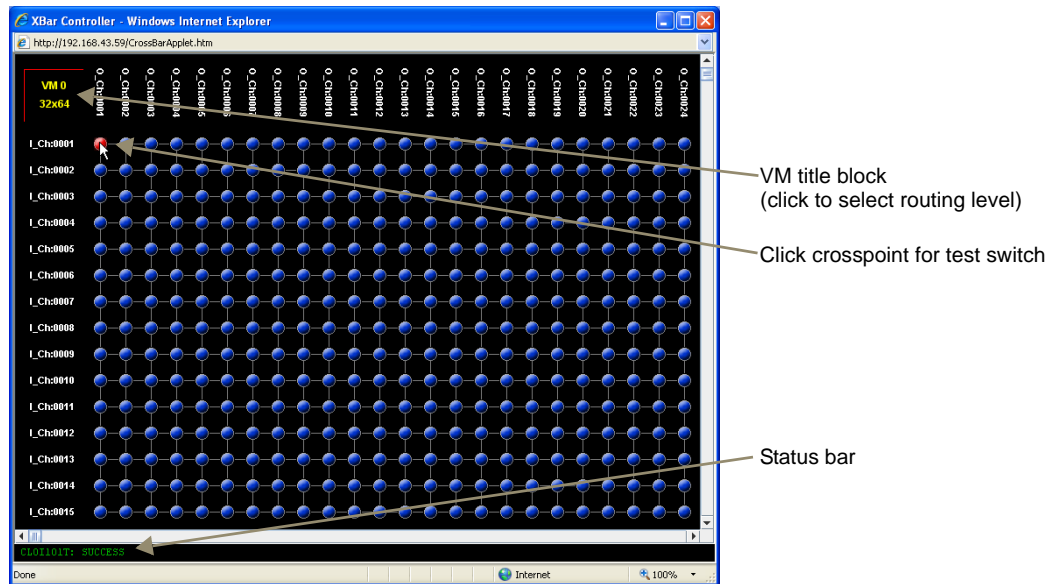
Before executing the test switch, make sure the first source device and the first destination device are connected to the input and output connectors as indicated in the “Octaire AutoPatch Connector Guide.” (Depending on the signal and connector type, you may need to attach more than one input and output for a signal (e.g., a Y/c signal will be routed over a BNC connector on the enclosure that routes “Y” and over the corresponding BNC connector on the enclosure that routes “c”).

Note: For complete information on the XBar Controller, see page 82.

The test switch below routes Input (source channel) 1 to Output (destination channel) 1 on VM 0 (the All routing level of audio-follow-video).

To execute a test switch with the XBar:

1. Install the Java Plug-in* if necessary. (The plug-in is required before the XBar Controller can be used.)
2. From any page in the site, click the Controller link.
The XBar launches.



3. Click the blue crosspoint for routing Input 1 to Output 1. (Inputs are on the left; outputs are across the top.)
The blue crosspoint image turns red as the switch is routed.

* The Java Plug-in must be installed on your PC before the XBar Controller will work. This free Java software may be downloaded from <http://www.java.com> (administrative login to the PC may be required to install the Java Plug-in).

To disconnect the test switch with the XBar:

1. Click the red crosspoint. The red crosspoint image turns blue as the test switch is disconnected.

Executing a Test Switch with BCS

We recommend routing a test switch with BCS (Basic Control Structure) commands on the Diagnostics page (see below) or with the XBar Controller (see page 72).

Note: *The Diagnostics page also displays Communication Statistics and provides access to a Telnet session for controlling the Octaire with BCS commands (see page 81).*

Communication Statistics	
RS232 to TCP Traffic	0
RS232 rx chars	3174
RS232 tx chars	1884
TCP to RS232 Traffic	0
TCP rx packets	0
TCP tx packets	0

FIG. 37 Diagnostics page

Note: *If you are not familiar with BCS (Basic Control Structure) commands, see the “BCS Protocol Instruction Manual” on the AMX AutoPatch CD or at www.amx.com.*

BCS commands are not case sensitive.

Before executing the test switch, make sure the first source device and the first destination device are connected to the input and output connectors exactly as shown in the “Octaire AutoPatch Connector Guide” for your matrix switcher (see page 96). Depending on the signal and connector type, you may need to attach more than one input and output for a signal (e.g., a Y/c signal will be routed over a BNC connector on the enclosure that routes “Y” and over a BNC connector on the enclosure that routes “c”).

The following test switch routes Input 1 to Output 1 on Level 0.

To send a test BCS command:

1. From any page in the site, click the Diagnostics link.
2. Enter CL0I1O1T (Change Level 0, Input 1 to Output 1, Take) in the BCS string field.
3. Click Send.

The system response for the command displays directly under the BCS string field. When the exact command that was entered appears, the command has been successfully executed.

Customizing the Site

The APWeb site can be customized in several different ways: This section covers customizing the site name, access to product services, and bootup operations. Customizing the control options is covered in the next section (see page 76).

Customizing the Site Name

The site name for the APWeb server can be customized at the APWeb Configuration page. Customizing the site name can be especially useful when accessing multiple AMX AutoPatch Routing Systems from multiple APWeb servers on one PC.

To customize the site name:

1. From any page in the site, click the Configuration link.
2. Under Set APWeb Site Name, enter the new name (36 character limit, excludes: = ' \ ? < >).
3. Click Apply. The new name appears at the top of all the pages within APWeb.

Enabling/Disabling Product Services

APWeb can be customized for additional access to the system with Telnet and/or BCS tunnel. They can be enabled or disabled from the APWeb Administration page. The default for both is *on*.

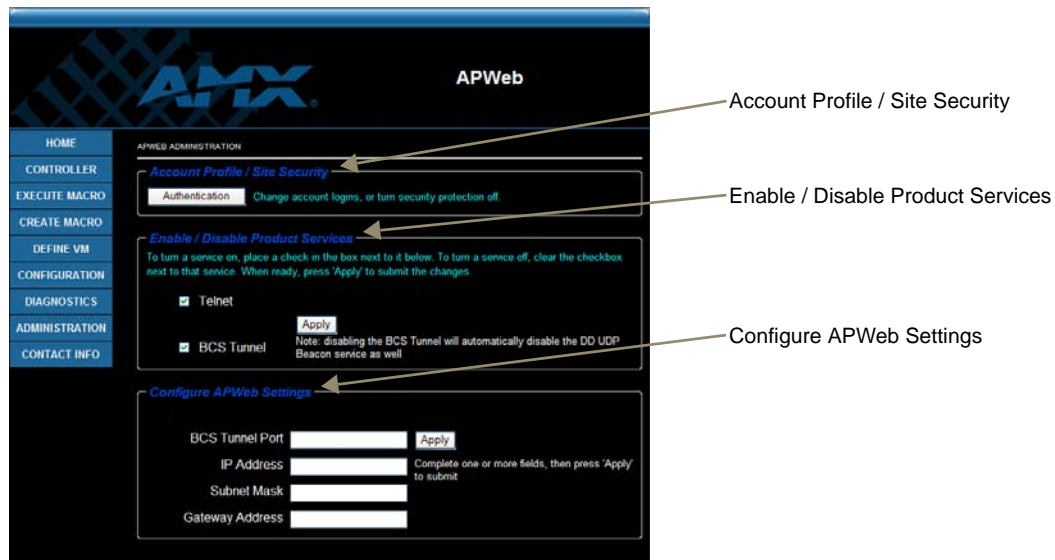


FIG. 38 APWeb Administration

Note: The APWeb Administration page also provides access to the Account Profile / Site Security page (see page 71).

To enable or disable product services:

1. From any page in the site, click the Administration link.
2. Select the means of access (see below), and click Apply. A prompt to reboot appears.
3. Click OK. (A reboot is required to implement the changes.)
 - **Telnet** – check this option to be able to open a Telnet client application, such as HyperTerminal, to access and control the system. This option *must* be enabled before establishing a Telnet session with APWeb. If this option is turned off, the Launch Telnet Session button will not be available on the Diagnostics page.

- **BCS Tunnel** – check this option to be able to open a TAP for entering BCS control commands. This is especially useful for third-party controllers, which can control the attached Octaire using IP connectivity.

Unlike all other access points in APWeb, the BCS tunnel is not authenticated, even if site security is turned on.

We strongly recommend that this service be turned off when not in use. (Note that disabling this option will also disable the Device Discovery UDP Beacon Service which allows an AMX AutoPatch Duet control module to connect to APWeb.) Be sure to change the BCS Tunnel Port number if you plan on using a different one than the default (3600).

Customizing Bootup Operations

During bootup, APWeb discovers configuration data that is stored on the attached distribution matrix and displays it. Several options are available for customizing bootup operations from the APWeb Configuration page.

Important: *Any time you perform a reboot from the APWeb site, the APWeb server reboots. The reboot updates information between the AMX AutoPatch Routing System and the APWeb server. The AMX AutoPatch system itself does not reboot.*

To customize bootup operations:

1. From any page in the site, click the Configuration link.
The APWeb Configuration page opens.
2. Under Bootup Operations, select (or unselect) the options (see below) to determine which parts (if any) of the configuration to retrieve during APWeb bootup.
3. After all selections are made, click Apply and reboot when prompted.

Bootup Operations Options

- **Discover System Configuration:** This higher-level option must be selected before the two sub-options for discovery are available (the sub-options are not dependent on each other; either or both can be selected at any time).

The default setting for this option is *on*.

If it is *off*, APWeb will not make any retrieval attempts from the attached system during a reboot; instead, it will display whatever was in memory the last time it was running.

- **Force VM Discovery:** Check this option to force APWeb to query the attached system for its VM (routing level) definitions and to replace any existing VMs in memory.
The default setting for this option is *on*.
When this option is *off*, APWeb reuses the stored VM definitions upon bootup.
- **Discover Hardware Devices:** Check this option for APWeb to query the attached system for its hardware devices.
The default setting for this option is *off*.
Since hardware information is not stored in memory, it is lost when APWeb is shut down. Be sure to check this option if you want the hardware information displayed on the Home page.

Customizing the Control Options

APWeb's two options for controlling an AMX AutoPatch Routing System are the XBar Controller and custom macros (switches that execute simultaneously).

Customizing the XBar

The XBar displays the crosspoints for the input and output channels. The three options for customizing the XBar are:

- Enabling audio control in the XBar
- Setting the size of the XBar window
- Setting the initial routing level (VM) for XBar control

Enabling Audio Control

If the system has audio, volume and input gain controls are available from the XBar, but must be enabled first from the APWeb Configuration page.

Important: *If the system does not have audio, volume and input gain must not be enabled.*

To enable audio control in the XBar:

1. From any page in the site, click the Configuration link.
2. Under Audio Support, select Allow Gain Control and/or Allow Volume Control.
3. Click Apply. The next time the XBar is launched, the enabled audio features are available.

After audio adjustments are made, you can disable one or both of these features so the user cannot change the settings (the settings will remain until audio is enabled again and new adjustments are made).

Setting the Size of the XBar Window

The size of the XBar applet can be changed from the APWeb Configuration page. The default size for the window is 800x580 (minimum = 300x300, maximum = 2000x2000). You may need to experiment a little to find the optimal display size for your PC.

To set the size of the XBar applet window:

1. If the XBar is open, close before proceeding.
2. From any page in the site, click the Configuration link.
3. Under Applet Window Size, enter the desired width and height for the window.
4. Click Apply. The next time the XBar is launched, it will open at the new setting size.

Setting the Initial VM to Display

From the APWeb Configuration page, the initial routing level (VM) can be set for executing switches. The VM is displayed in the VM title block in the upper left corner of the XBar. The default VM for executing switches that will display for all XBar Controllers that are launched for the system can be specified on the APWeb Configuration page.

To set the initial routing level (virtual matrix) that will display in the XBar:

1. From any page in the site, click the Configuration link.
2. Under Initial VM to Display in XBar Controller, enter the virtual matrix number (routing level).

Note: *If you want the default VM to be the first virtual matrix (level) discovered during bootup (no matter what its number), enter a value of -1.*

3. Click Apply. The next time the XBar is launched, the newly designated default VM (level) will display in the VM title block.

Creating/Editing Macros

A macro is a sequence of BCS (Basic Control Structure) control commands that are executed simultaneously. Up to 50 macros can be created on the Create/Edit Macro page and executed from the Execute Macro page. (A macro can contain up to 63 individual command characters).

Note: *If you are not familiar with BCS (Basic Control Structure) commands, see the “BCS Protocol Instruction Manual” on the AMX AutoPatch CD or at www.amx.com.*

APWeb macros are defined, stored, and executed on APWeb (they cannot be executed from other control points, e.g., the control panel). APWeb macros should not be confused with local presets (called macros on some systems) or with global presets. The Octaire does *not* support local presets.

Global presets can be defined for the Octaire in several ways: from its control panel, from the BCS string field on the Diagnostics page, in a Telnet session, or from a serial interface. The global preset is then stored on the Octaire. An APWeb macro can consist of a command that executes a global preset command that was defined elsewhere (see the second example below). Since an execute global preset command replicates a predefined total system state, it is not normally included with other commands in a macro.

A macro BCS command (not case sensitive) is one or a series (shown in the first example below) of complete BCS commands. Do not enter a space (or any other character) between the “T” ending one command and the start of the next command.

Macro Examples

BCS Command	Action
CL0I207TCL0I5021 23 24T	Creates a macro that switches Input 2 to Output 7 and Input 5 to Outputs 21, 23, and 24 on Level 0
R7T	Creates a macro to execute global preset 7 (defined on control panel)



FIG. 39 Create/Edit Macro page

We recommend writing down the BCS command(s) used for each macro, as the contents of a macro cannot be retrieved after it is created. We also suggest making the names of the macros very descriptive (so the user can easily determine what the macro switches) and/or providing the user with a list of macro names with descriptions of each macro’s contents.

To create a macro:

1. From any page in the site, click the Create Macro link.
2. Enter the BCS commands (63 character maximum) in the BCS String field.
3. Enter a unique name up to 23 characters for the macro in the Macro Name field.
4. Click Create. The macro is added to the list on the Execute Macro page.

Tip: A macro can be created to disconnect the switches in an existing macro.

The contents of a macro can be replaced at the Create/Edit Macro page.

To redefine the contents of an existing macro:

1. From any page in the site, click the Create Macro link.
2. Enter the new BCS commands in the BCS String field.
3. Enter the exact name of the macro which is being redefined in the Macro Name field.
4. Click Create. The macro now contains the new information.

Macros can also be deleted from the Create/Edit Macro page.

To delete a macro:

1. From any page in the site, click the Create Macro link.
2. Under the Delete Macro section, select the macro to be deleted from the macro list.
3. Click Delete. The macro is removed from the list on the Execute Macro page.

Defining Routing Levels (Manually Configuring VMs)

With the Octaire, routing level information can be manually entered to specify the routing levels, which are referred to as VMs (virtual matrices) in APWeb. With this feature you can provide selective control access to the system for different points of control.

The Define VM (Manual Configuration) page allows you to define the routing level by specifying a VM number and VM name and to enter the number of inputs and outputs for the system.

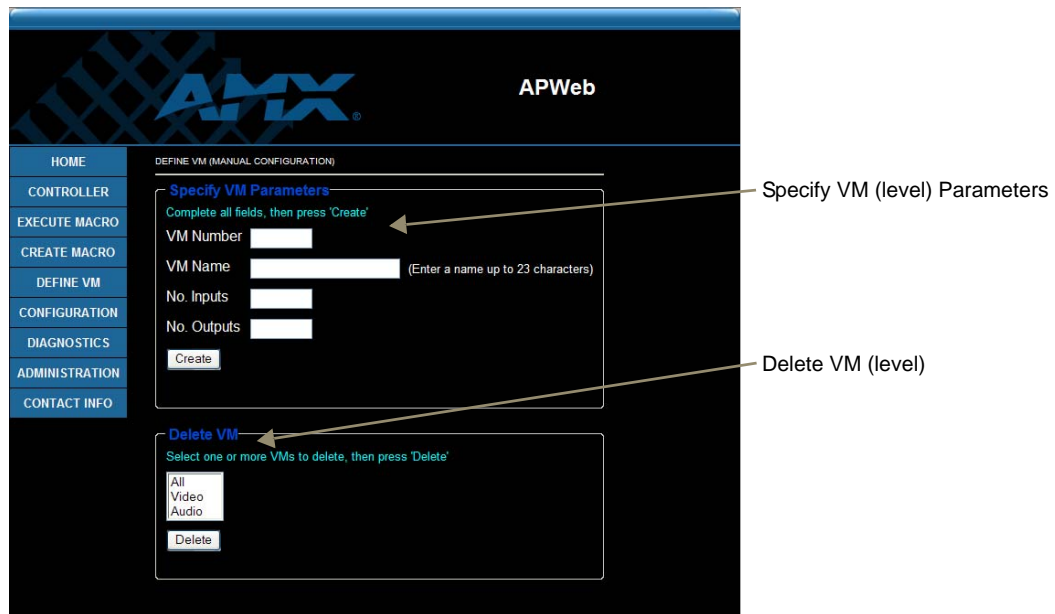


FIG. 40 The Define VM (Manual Configuration) page is used for defining routing levels

When entering the number of the new routing level (VM), apply the following rules:

VM Numbering Rules

For control purposes, the VM number must match the level numbers on the Octaire as follows:

- All (audio-follow-video) routing level (VM) = 0
- Video routing level (VM) = 1
- Audio routing level (VM) = 2

Important: *When you specify the number of inputs and outputs for a VM, they will always correspond to the first inputs and outputs in the system. For example, if you want to create a VM that only provides access to 16 outputs in a system with 48 outputs, they will be the first 16 outputs.*

To manually define a routing level (VM):

1. From any page in the website, click the Configuration link.
2. Under Bootup Operations (Discover System Configuration must be selected), unselect the Force VM Discovery option.
3. Click Apply and reboot when prompted.
4. From any page in the website, click the Define VM link.
5. If desired or required, delete the existing VM definitions first (see the instructions below).
6. Enter a VM number (follow the Numbering Rules above).
7. Enter the corresponding VM name: **All** (audio-follow-video), **Video**, or **Audio**.
8. Enter the number of inputs and outputs for the system (e.g., No. Inputs 48, No. Outputs 16).
9. Click Create.

The VM is added to the drop down list in the VM Selection Pad dialog box for the XBar, to the Home page, and to the list of VMs under the Delete VM section.

Note: *Deleting a VM that corresponds to one of the pre-configured levels on the Octaire will remove it from the APWeb server but not from the Octaire itself. To recover the pre-configured levels, turn VM discovery back on (reselect the Force VM Discovery option, see Steps 1 and 2 above). When APWeb is rebooted, the routing levels from the systems will be retrieved and replace the manually configured ones in the list.*

To delete an existing routing level (VM):

1. From any page in the website, click the Define VM link.
 2. Under the Delete VM section, select one or more VMs to be deleted from the VM list (to multi-select, hold down the Control key on your PC as you click each VM).
 3. Click Delete.
- The VM is removed from the list (and is also removed on the Home page and from the drop down list in the VM Selection Pad dialog box for the XBar).

Handling Security Issues

APWeb's system security limits access to the site. The security setup is explained on page 71.

We recommend that the following security measures be followed:

- Leave system security turned on (the default setting).
- Place the APWeb server site inside your network firewall.
- Set the account profiles as part of the initial setup (see page 71).
- Deploy APWeb in a secure LAN environment.
- If extra precaution is necessary, lock the enclosure(s) in a secure location.



Caution: *Even if the site security is turned on, the BCS tunnel is not authenticated. We strongly recommend that this service be turned off when not in use (see page 74).*

Turning System Security Off

The option to turn system security on and off is on the Account Profile / Site Security page (accessed by clicking the Authentication button on the APWeb Administration page).

To turn system security off:

1. From any page in the site, click the Administration link.
2. Under Account Profile / Site Security, click Authentication.
The Account Profile / Site Security page opens.
3. Under Disable Site Security, enter the Admin user name and password (Admin default – **super** and **super**).
4. Click Turn Security Off.
System security is turned off.

To turn system security back on:

1. Repeat Steps 1 through 3 above.
2. Click Turn Security On.
System security is turned on.

Resetting the Admin User Name and Password

If the client-defined Admin user name and password is lost, the Service switch below the TCP/IP (RJ-45) connector can be used to reset them to the default values (all values including those for the IP Address and Subnet Mask are reset in the process). When the switch is flipped to the right, it is set for normal functioning. As long as security is turned on (the default setting), a password is required to access the APWeb server. When the Service switch is flipped to the left (FIG. 41 on page 81), it is set for Service mode and the APWeb server is disabled.



Caution: *The steps on the following page will also automatically reset the default values for the IP Address and Subnet Mask.*

To reset the Admin user name and password to their default values:

1. Flip the Service switch to the left to place it in Service mode (FIG. 41).

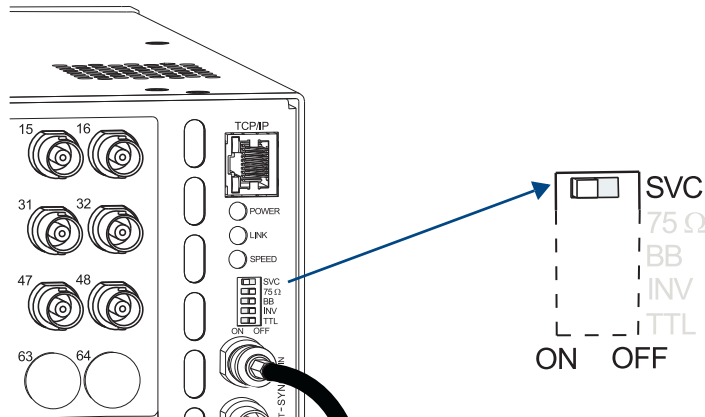


FIG. 41 Service switch in Service mode

2. Log on to the Admin Home page, using the default Admin user name and password: **super** and **super**.
3. From any page in the site, click the Configuration link.
4. On the APWeb Configuration page, click Reboot APWeb.
5. Wait approximately 20 to 30 seconds; then flip the Service switch to the right to automatically reboot and return to normal functioning with the factory defaults (if you were not using the defaults, restore your own settings now).
6. Optional – If you do not want to use the default values, enter new user names and passwords by following the steps on page 71.
7. Optional – Enter an IP Address and Subnet Mask (see page 70).

Opening a Telnet Session

Important: Before a Telnet session can be opened, the Telnet option must be enabled under the Enable/Disable Product Services options on the APWeb Administration page (see page 74).

A Telnet session for controlling the Octaire with BCS commands can be opened by clicking the Launch Telnet Session button on the Diagnostics page. The button opens the PC's default terminal emulation program (e.g., HyperTerminal on Windows). A Telnet session may also be launched outside of the APWeb server as a direct connection by specifying the correct IP address and port number.

Note: The Diagnostics page also allows you to enter a test BCS (Basic Control Structure) command (see page 73) and view Communication Statistics.

Since only one client at a time can initiate a Telnet session, other clients who try to use Telnet or the XBar Controller will be notified that they cannot control the system until the initial session is closed.

When site security is turned on (the default setting), the Admin user name and password are required to log into this service.

To open a Telnet session:

1. From any page in the site, click the Diagnostics link.
2. Click Launch Telnet Session to open your terminal emulation program.
3. Enter your APWeb Admin user name and password.
The program is ready to accept BCS commands.

Executing and Disconnecting Switches

APWeb’s two control points for executing and disconnecting switches on an AMX AutoPatch Routing System are the crosspoints on the XBar Controller (see below) and the macros on the Execute Macro page (see page 85).

Executing and Disconnecting Switches on the XBar

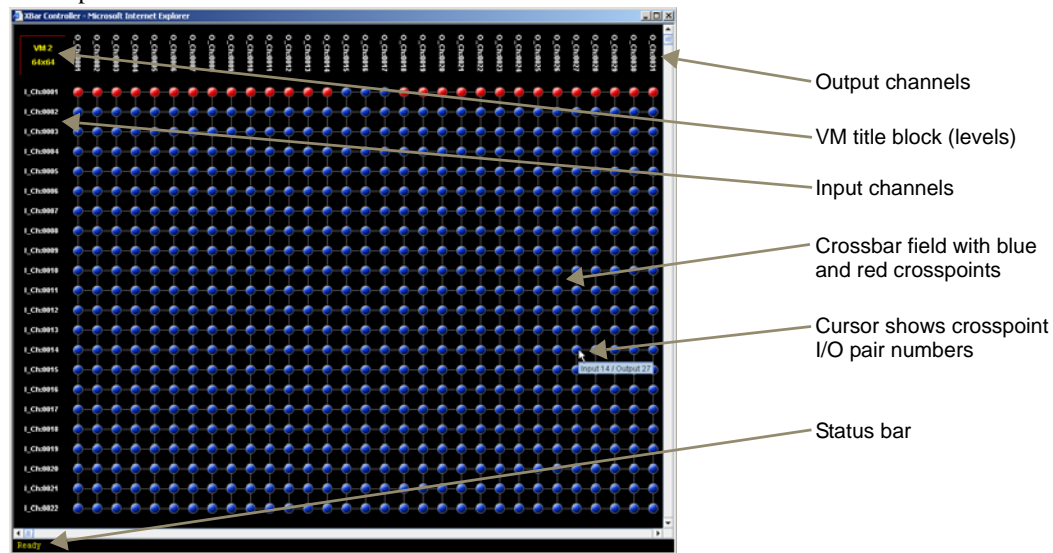
The XBar Controller is a graphic interface control panel that executes switches on an AMX AutoPatch Routing System. The XBar can control specific parts of the system through routing levels, which are referred to as VMs (virtual matrices). For example, the XBar can switch audio-follow-video signals on one VM, video on another, and audio on yet another. The VM selected will determine which routing level is being controlled.

Any APWeb server for a single system can be accessed from up to five PCs at the same time. The XBar for that system can be operated simultaneously from all of the PCs using the same or different VMs. Simultaneous XBar users can open the VM Selection Pad and update status as needed. Keep in mind that executing switches on one VM may affect the routing state on the other VMs.

Note: Multiple independent AMX AutoPatch Routing Systems (each with some type of APWeb server, e.g., a TCP/IP connector on the CPU, an APWeb expansion board, or a module) can be controlled from a single PC. Each APWeb server can be assigned a unique IP address and a custom site name. The individual addresses can then be entered as needed in the browser.

Navigating the XBar Controller

The crosspoint images in the XBar’s crossbar field represent the intersections of the input channels and the output channels.

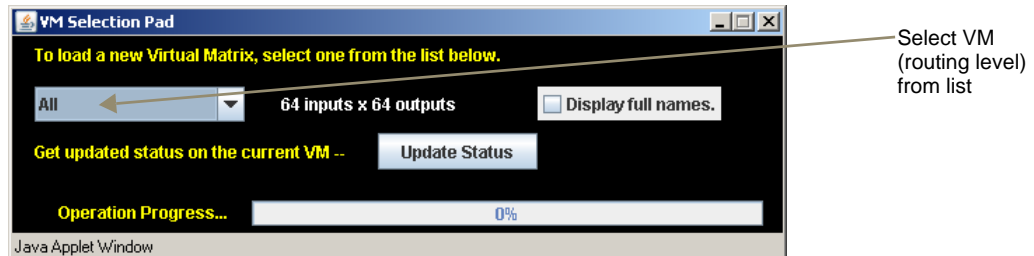


Use the following features to navigate the XBar:

- **VM title block** – click to open the VM Selection Pad to change the routing level (VM) or update system status
- **Input channels (on left)** – indicate the numbers of the source channels
- **Output channels (on top)** – indicate the numbers of the destination channels
- **Blue crosspoint** – blue indicates that there is no active signal; click to route the signal (the crosspoint will remain blue if the switch is not completed)
- **Red crosspoint** – red indicates an actively routed signal; click to disconnect the signal
- **Cursor over crosspoint** – move over I/O pairs to display channel numbers

To execute or disconnect switches:

1. From any page in the site, click the Controller link.
The XBar launches.
2. Optional (to change the routing level) – Click the VM title block in the upper left corner.
The VM Selection Pad dialog box opens. From the VM list, select the new VM. Close the VM Selection Pad.



3. Click a blue (inactive) crosspoint to execute a switch.
The blue crosspoint image turns red as the switch is routed.
Or
Click a red (active) crosspoint to disconnect a switch.
The red crosspoint image turns blue as the switch is disconnected.

Tip: To select or unselect consecutive crosspoints, hold down the Control key and move the mouse across the desired crosspoints (do not hold down any of the mouse buttons).

When the XBar is used simultaneously by multiple users or when other control options (such as control panels or external serial controllers) are also being used, system status can be updated from the VM Selection Pad.

To update system status when using multiple control points:

1. Click the VM title block in the upper left corner of the XBar.
The VM Selection Pad dialog box opens.
2. Click Update Status.
The most current routing state is displayed.
3. Exit the VM Selection Pad when done.

Adjusting Audio Settings

If the Octaire system contains audio, both volume and input gain can be adjusted from the XBar controller after they are enabled (see page 76).

Note: This functionality is only available in the Octaire on VM 0 and VM2.

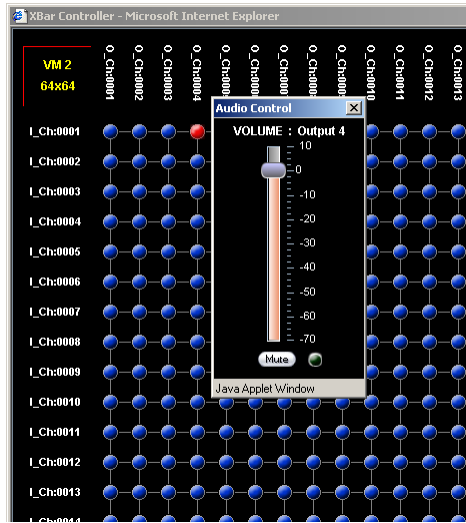
Adjusting Volume

The volume feature must be enabled. After volume adjustments are made, you can disable this feature so the user cannot change the settings (the settings will remain in effect until the audio is enabled again and new adjustments are made) or you can leave it enabled for the user.

To adjust volume:

1. From any page in the site, click the Controller link.
The XBar launches.
2. Check to be sure the selected VM is either VM 0 (All: audio-follow-video) or VM 2 (Audio).
If it is not, see page 83 for selecting VMs (routing levels).

- Right click on the output channel (e.g., O_Ch:0004) needing adjustment.
The Audio Control dialog box opens.



- Move the slider to adjust the volume (up increases; down decreases) or click the Mute button to mute/unmute.
- Close the Audio Control dialog box.
- Repeat Steps 3 through 5 as necessary for additional outputs.

Adjusting Input Gain

The purpose of “Input Gain Control” is to allow input (source) signals of varying amplitudes to be equalized before they are routed and the volume is adjusted. Equalizing input signals provides a consistent reference for volume adjustments and eliminates jumps in audio level when routing a new input to an output.

Typical uses for input gain (the nominal level of the signal from the source device) include switching consumer and professional grade audio equipment (whose levels can vary noticeably) in the same matrix switcher. Input gain adjustment is also used for equalizing amplitudes between balanced and unbalanced source inputs.



Caution: *We strongly recommend that input gain adjustments be made only by a qualified dealer or installer.*

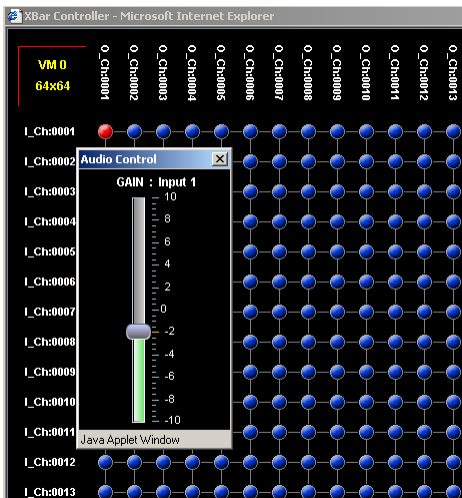
The input gain feature must be enabled (see page 76) for use in APWeb. After audio adjustments are made, we recommend that you disable this feature so the user cannot change the settings (the settings will remain in effect until audio is enabled again and new adjustments are made).

The following steps tell how to adjust input gain as part of the process of equalizing input levels.

To adjust input gain:

- From any page in the site, click the Controller link.
The XBar launches.
- Check to be sure the VM is either VM 0 (All: audio-follow-video) or VM 2 (Audio). If it is not, you will need to change the routing level (see page 83).
- Route a source (input) to the desired destination (output) by clicking the desired I/O crosspoint.

- Right click on the input channel (e.g., I_Ch:0001) that was just routed.
The Audio Control dialog box opens.



- Move the slider to adjust the input gain (up increases; down decreases).
- Close the Audio Control dialog box.
- Repeat Steps 3 through 6 as necessary for additional sources (inputs) that will be routed to the same destination (output).

Executing Macros

Once a macro is created for a system on APWeb, it can be executed from any PC with access to the APWeb server for that system.

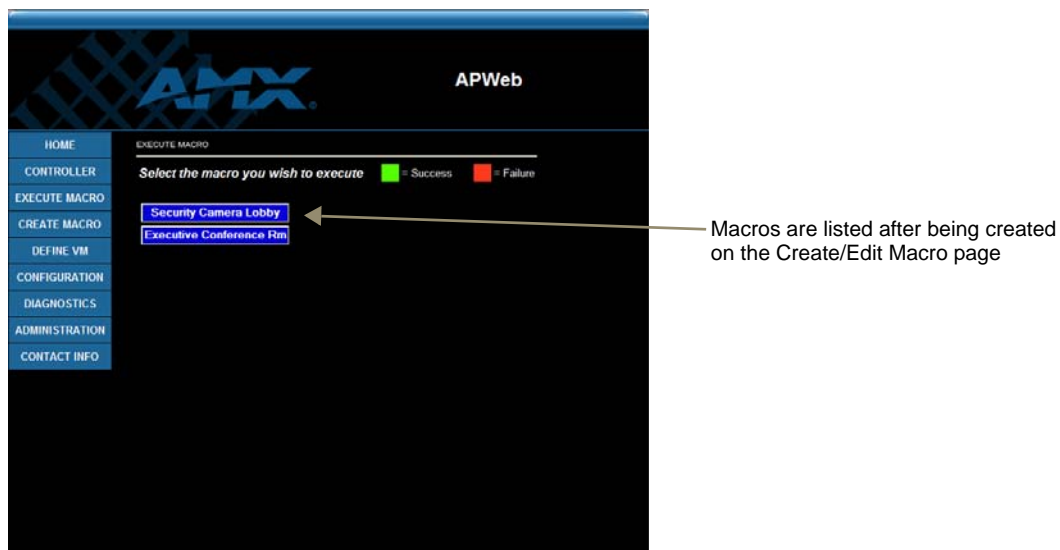


FIG. 42 Execute Macro page

To execute a macro:

- From any page in the site, click the Execute Macro link.
- Click the macro button for the macro you want to execute.
When the text on the macro button turns green, the macro has successfully executed. (If the text on the macro button turns red, the macro failed to execute.)

APWeb Connection Information Worksheet

This worksheet is provided for your convenience.
Print or photocopy as many copies of this form as necessary.

Login Names (Required)

Login Names (user name) and Passwords for administrative and user access are required. (The user names and passwords are case sensitive.)

Addresses (Must Be Supported)

Fixed or Static IP Address: _____ . _____ . _____ . _____

(The default APWeb address is 192.168.0.251)

Subnet Mask: _____ . _____ . _____ . _____

(The default Subnet Mask is 255.255.255.0)

Gateway IP Address: _____ . _____ . _____ . _____

DNS (Domain Name Server) Server Addresses

Primary DNS Server IP Address: _____ . _____ . _____ . _____

Secondary DNS Server IP Address: _____ . _____ . _____ . _____

TCP/IP

BCS Tunnel: _____ (default is 3600)

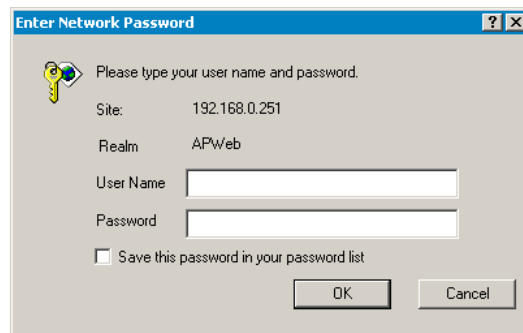
APWeb – Controlling the Octaire

This chapter starts with four easy steps for connecting to APWeb after the initial setup by the Network Administrator. It explains how to use APWeb's two control options for executing and disconnecting switches: the XBar Controller (a crosspoint interface) and Macros (which are programmed by the Network Administrator).

Connecting to APWeb

To connect to the APWeb server:

1. Launch a browser on your PC.
2. Type **http://192.168.0.251** (or the address provided by the Network Administrator) in the address bar of the browser and press Enter.
The Enter Network Password dialog box opens.



3. Enter the user name and password (both are case sensitive) provided by your Network Administrator.
The default user name and password are **none** and **none** (the actual character string **n-o-n-e**).
4. Click OK.
The APWeb Home page opens.

Home Page

The Home page for APWeb contains information on the system’s routing levels (referred to as virtual matrices or VMs in APWeb) and the number of currently defined macros. The site name can be customized to uniquely identify your Octaire system (contact your Network Administrator).

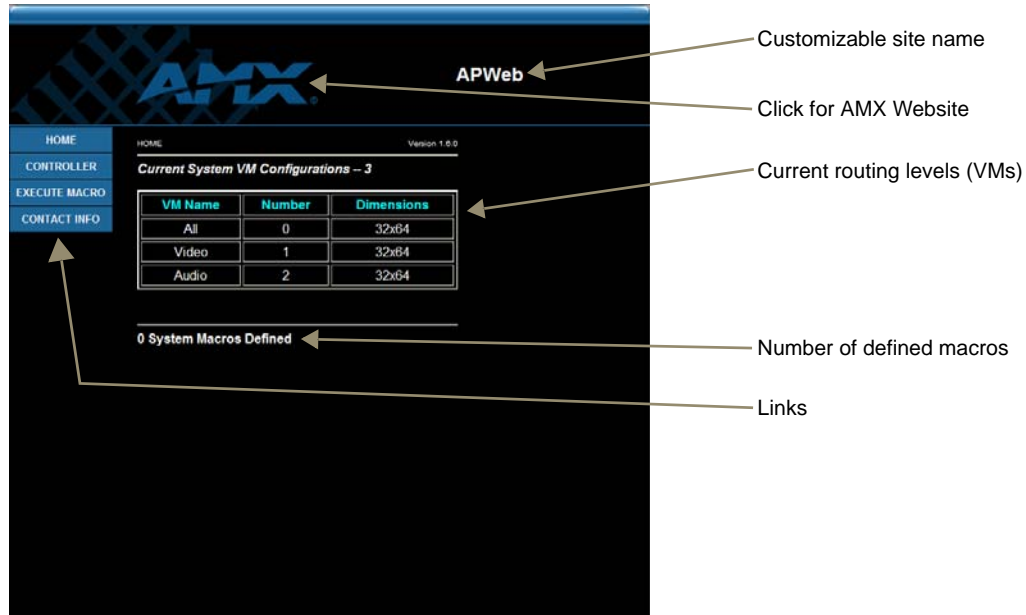


FIG. 43 APWeb’s Home page

Home Page Links

The links on the left side of the Home page access the pages listed below:

Link	Page	Function
Home	Home	The main page in the APWeb site
Controller	XBar Controller	The controller interface for executing and disconnecting switches (see below)
Execute Macro	Execute Macro	For executing predefined macros (page 91)
Contact Info	Contact Info	Displays the AMX address, phone and fax numbers, and website link

Note: Contact your Network Administrator if you need to change the name of the site.

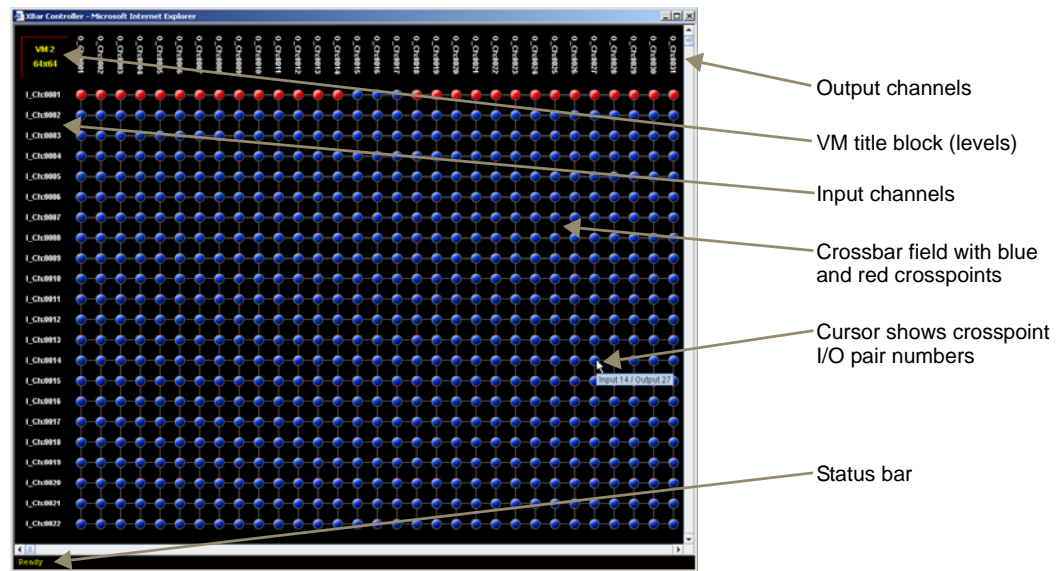
Executing and Disconnecting Switches

XBar Controller Overview

Switches can be executed and disconnected on the Octaire by using the XBar, a graphic interface control panel. The XBar controls specific parts of the system through routing levels. For example, the XBar may switch audio-follow-video signals on one routing level, video on another, and audio on yet another. The routing level selected will determine which part of the system is available for control in the XBar.

An APWeb server provides access to a single Octaire system from a specific IP address and can be accessed from up to five PCs at the same time. If you are controlling the same system as other users, you can open the VM Selection Pad and update status as needed (see page 91). The VM Selection Pad is also used to change routing levels. Keep in mind that executing switches on one routing level may affect the routing state on the other routing levels.

Navigating the XBar Controller



The crosspoint images in the XBar’s crossbar field represent the intersections of the input channels and the output channels.

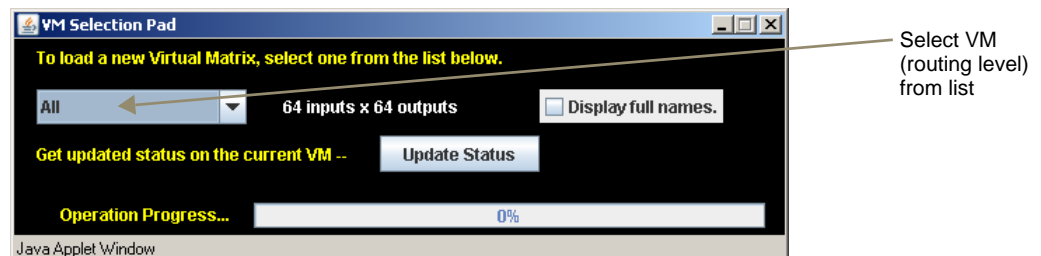
- **VM title block** – click to open the VM Selection Pad to change the routing level or update system status
- **Input channels (on left)** – indicate the numbers of the source channels
- **Output channels (on top)** – indicate the numbers of the destination channels
- **Blue crosspoint** – blue indicates that there is no active signal; click to route the signal (the crosspoint will remain blue if the switch is not completed)
- **Red crosspoint** – red indicates an actively routed signal; click to disconnect
- **Cursor over crosspoint** – move over I/O pairs to display channel numbers

Executing and Disconnecting Switches on the XBar

Use the following directions to control the Octaire from the APWeb site.

To execute or disconnect switches with the XBar:

1. From any page in the site, click the Controller link.
The XBar launches.
2. Optional (to change routing level) – Click the VM title block in the upper left corner.
The VM Selection Pad dialog box opens.
3. From the VM list, select the new routing level.
4. Close the VM Selection Pad.



5. Click a blue (inactive) crosspoint to execute a switch.
The blue crosspoint image turns red as the switch is routed.
Or
Click a red (active) crosspoint to disconnect a switch.
The red crosspoint image turns blue as the switch is disconnected.

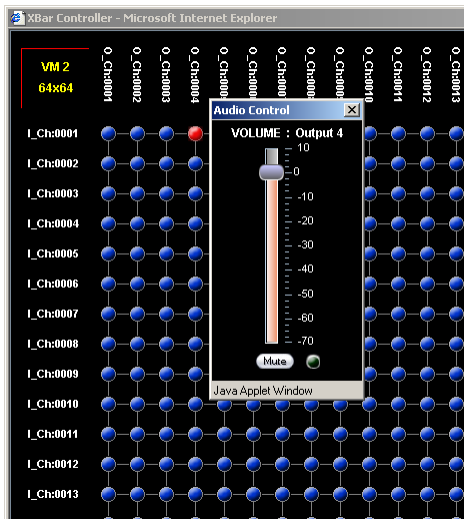
Tip: To select or unselect consecutive crosspoints, hold down the Control key and move the mouse across the desired crosspoints (do not hold down any of the mouse buttons).

Adjusting Volume

If the system supports audio and the volume adjust feature is not working, verify with the Network Administrator that it has been enabled.

To adjust volume:

1. From any page in the site, click the Controller link.
The XBar launches.
2. Check to be sure the selected VM is either VM 0 (All: audio-follow-video) or VM 2 (Audio).
If it is not, see page 89 for selecting VMs (routing levels).
3. Right click on the output channel (e.g., O_Ch:0004) needing adjusting.
The Audio Control dialog box opens.



4. Move the slider to adjust the volume (up increases; down decreases) or click the Mute button to mute or unmute.
5. Close the Audio Control dialog box.
6. Repeat Steps 3 through 5 as necessary for additional outputs.

Updating Status on the XBar

The XBar can be updated from the VM Selection Pad to show changes in system status. This can be helpful when the XBar is used simultaneously by multiple users or when other control options (such as control panels or external serial controllers) are also being used.

To update system status when using multiple control points:

1. Click the VM title block in the upper left corner of the XBar.
The VM Selection Pad dialog box opens.
2. Click Update Status.
The most current routing state is displayed.
3. Close the VM Selection Pad.

Executing Macros

A macro is a sequence of control commands that are executed simultaneously. Macros can be executed on the Octaire from the Execute Macro page.

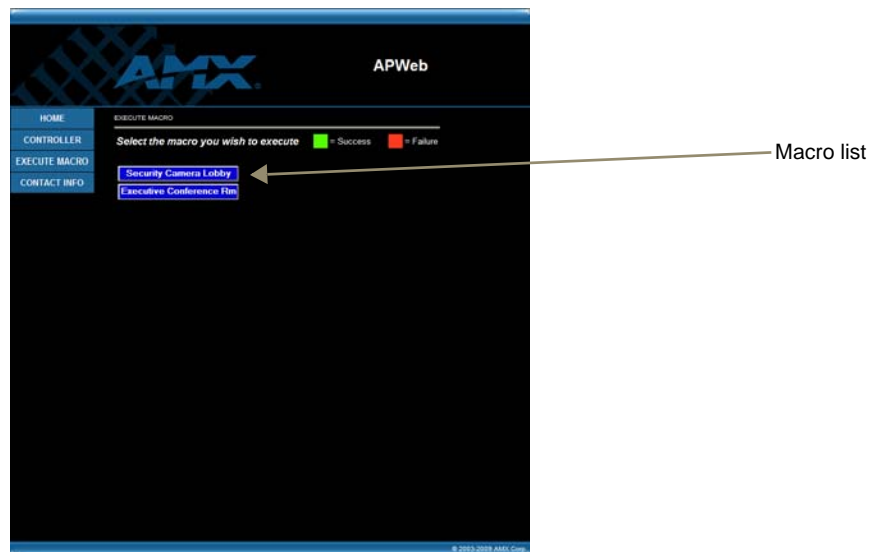


FIG. 44 Execute Macro page

Note: *If you need additional macros, contact your Network Administrator.*

To execute a macro:

1. From any page in the site, click the Execute Macro link.
2. Click the macro button for the macro you want to execute.
When the text on the macro button turns green, the macro has successfully executed.
(If the text on the macro button turns red, the macro failed to execute; contact your Network Administrator.)

APWeb – Additional Info for Network Admin

This chapter contains information on embedding the XBar applet (see below) and on changing the proxy setting (see page 93).

Embedding the XBar Applet

The XBar applet can be embedded in a custom website by using the applet tag shown below.

Make any of the following adjustments to the code to fit your particular system's requirements.

- Replace the code base value with the IP address for your system if it is different than the default IP address.
- Set the width and height for the display based on the initial virtual matrix size (smaller VMs look fine in a smaller size, while larger VMs require a larger size to minimize scrolling).
- Optional – Specify the "InitialVM" value, or the lowest numbered VM will display by default.
- Optional – Include the "VMLockDown" information if you want to limit control to a particular virtual matrix; otherwise, all virtual matrices will be accessible from the VM title block. Specify "locked" or "unlocked" for the value. The XBar defaults to the unlocked state if this option is not included in the tag.
- Optional – Specify the "AllowGain" value, if you want the input gain adjustment feature enabled. Specify "true" for the value.
- Optional – Specify the "AllowVolume" value, if you want the output volume adjustment feature enabled. Specify "true" for the value.

Important: *If you do not want either or both of the "Allow Gain" and "Allow Volume" options, omit those parameter(s) entirely.*

XBar Applet Tag

```
<HTML>
<BODY>
<!-- Your custom html code goes here. -->
<APPLET code="CrossBar.class" codebase="http://192.168.0.251"
archive="CrossBar.jar" width=400 height=500 >
    <param name = "InitialVM" value = "0">
    <param name = "VMLockDown" value = "locked">
    <param name = "AllowGain" value = "true">
    <param name = "AllowVolume" value = "true">
</APPLET>
</BODY>
</HTML>
```


Changing the Proxy Setting

If the Enter Network Password dialog box does not open during setup, try the following APWeb troubleshooting strategies:

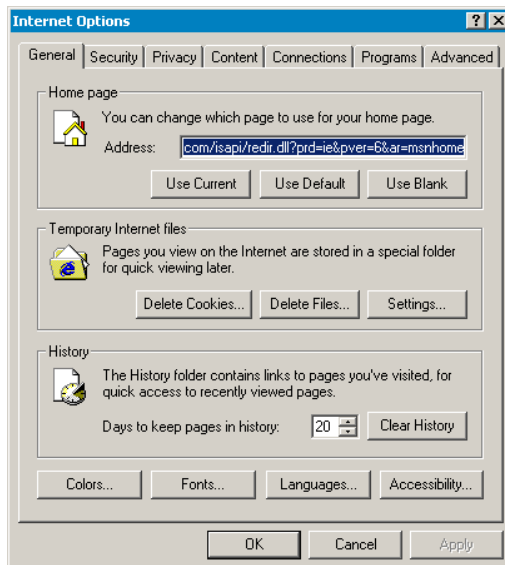
- Check all power, signal, and link connections.
- Check the Link indicator LED on the TCP/IP connection on the primary enclosure's CPU.
- If the indicator is not illuminated, check the cable type. It must be an RJ-45 crossover cable from the TCP/IP connector to the PC or an RJ-45 straight-through patch cable from the TCP/IP connector to the network/hub.
- Ping the system.
- Try connecting to the APWeb server again.

If the Enter Network Password dialog box still does not open, you may need to add an exception in the Proxy Setting dialog box.

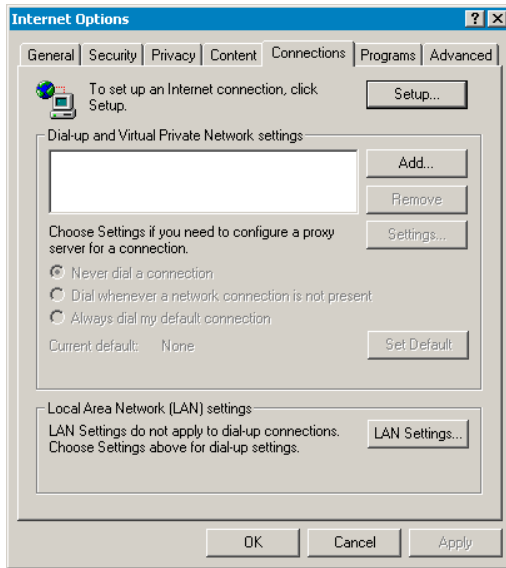
The following instructions apply to Internet Explorer. To change these settings in another browser, consult its Help file.

To add an exception to the proxy setting information:

1. From the Tools menu on the browser, select Internet Options.
The Internet Options dialog box opens.



2. Select the Connections tab.

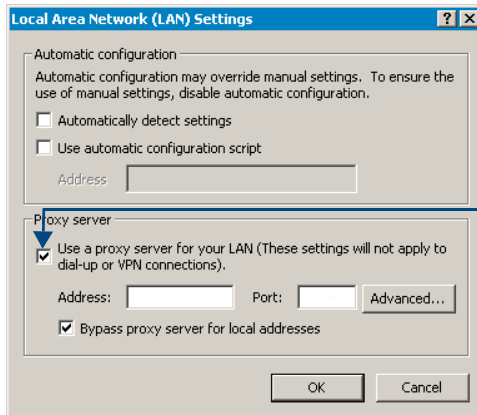


3. Click LAN Settings.

The Local Area Network (LAN) Settings dialog box opens.

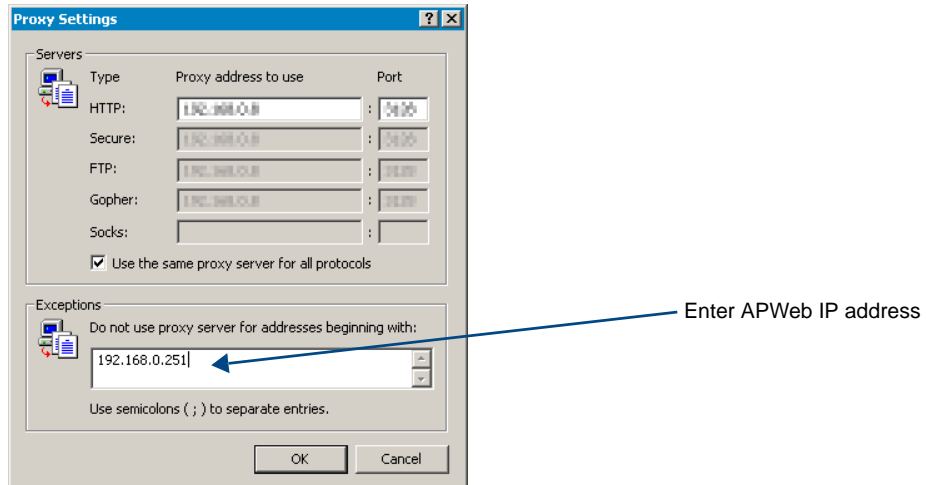
If the Proxy server box is checked, go to Step 4.

If the Proxy server box is not checked, check it before going to Step 4.



Be sure Proxy server box is checked

4. Click Advanced.
The Proxy Settings dialog box opens.



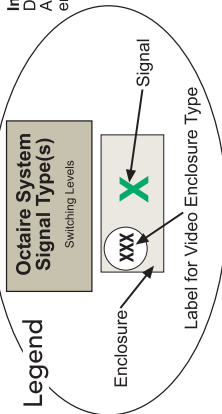
5. In the Exceptions field, enter the appropriate APWeb IP address (the default is 192.168.0.251).
6. Click OK to exit each of the dialog boxes used in these steps.

Appendix A – Octaire AutoPatch Connector Guide



Octaire – AutoPatch Connector Guide

93-1044-099



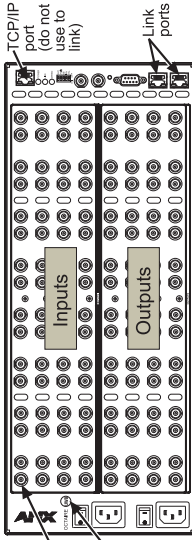
Important:

Do *not* link an Octaire enclosure to another type of AMX AutoPatch enclosure or to another Octaire enclosure which is not part of its factory-defined system.

2b. Place color band on first input (see Signal Type – Color Bands chart below).

2a. Check signal label on video enclosures.

Video Enclosure



Linking Rules

- Video Enclosures:**
- Primary enclosure (with control panel) should be cabled for the first signal in a component signal (e.g., R for RGBHV).
 - Secondary enclosures of the same signal type (e.g., UWB – G and B or SYNC – H and V) are interchangeable.
 - Link in the order shown in the columns below left.
- Stereo Audio Enclosure:**
- Does not have a signal label or color band; link last in system.

Linking Directions

An Octaire Distribution Matrix is a fixed system that routes one component of a signal type per enclosure.

To **correctly link and cable a multi-enclosure Octaire system:**

- Look at the top of each column below to find the one which graphically represents the enclosures for the signal type(s) in your system.
- Complete Steps 2a and 2b to the upper right.
- Use the signal type labels as a guide to link them according to the "Linking Rules" (to the right) in the order shown below and destinations to the inputs and outputs using a single component in each enclosure according to the applicable column below.

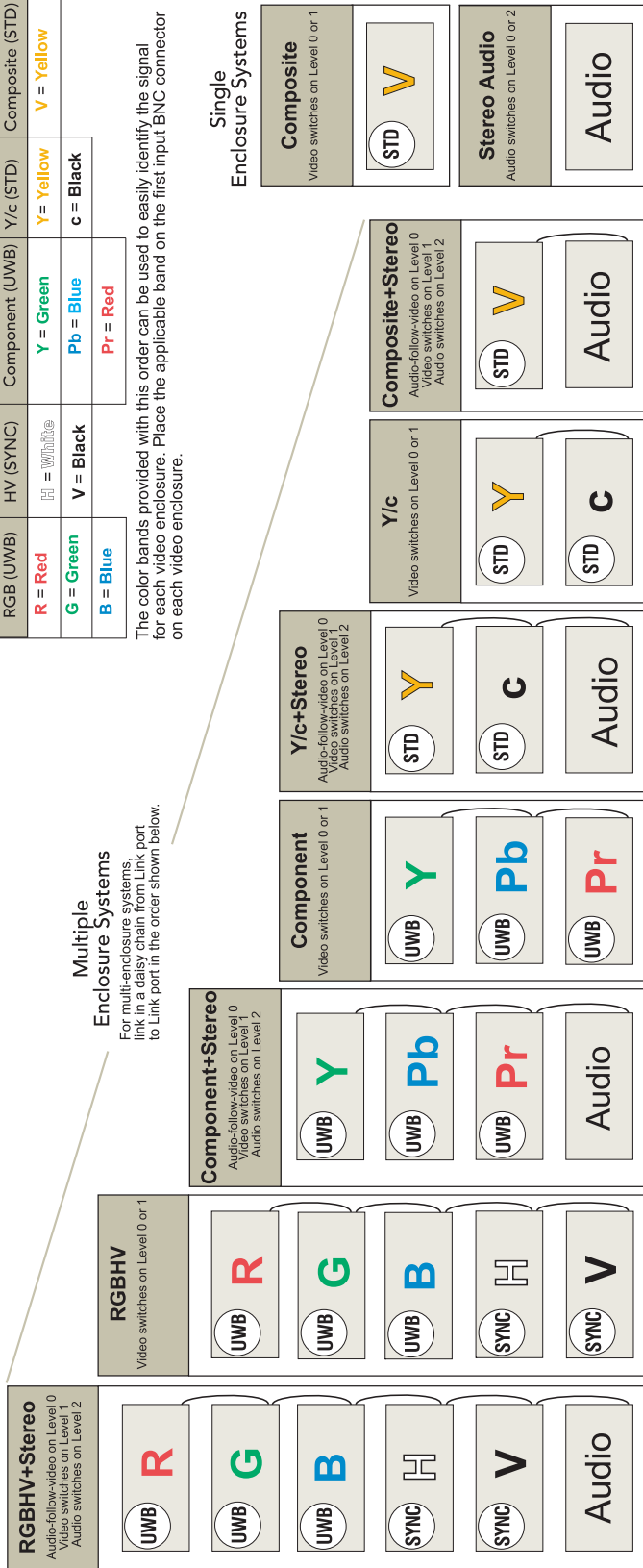
Video Enclosure Types	
STD: standard	UWB: ultra-wideband
SYNC: sync	

Signal Type – Color Bands

RGB (UWB)	HV (SYNC)	Component (UWB)	Y/c (STD)	Composite (STD)
R = Red	H = White	Y = Green	Y = Yellow	V = Yellow
G = Green	V = Black	Pb = Blue	c = Black	
B = Blue		Pr = Red		

Multiple Enclosure Systems

For multi-enclosure systems, link a daisy chain of link ports to Link port in the order shown below.



Single Enclosure Systems



The color bands provided with this order can be used to easily identify the signal for each video enclosure. Place the applicable band on the first input BNC connector on each video enclosure.

Appendix B – Programmer’s Interface for System Diagnostics

System Component Information

The Octaire displays system information in its splash screen for diagnostic purposes. The information indicates the current status and well-being for five of the system’s components.

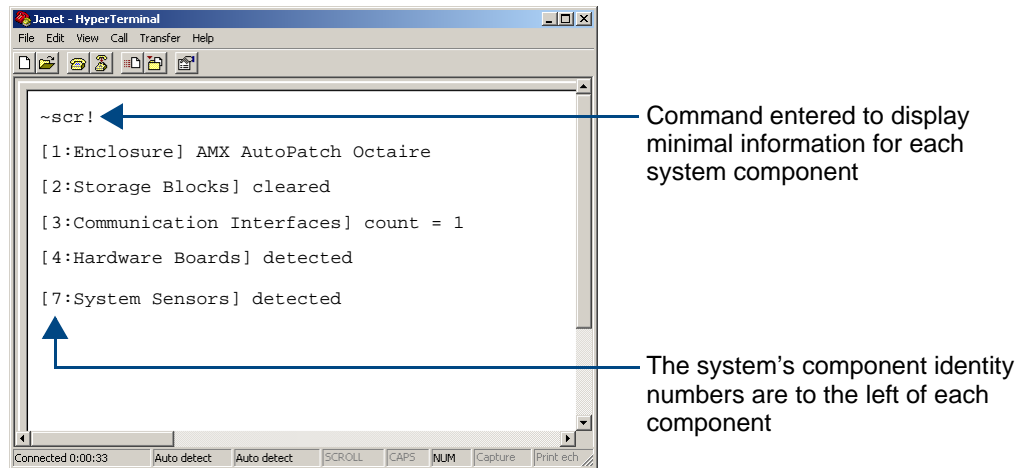


FIG. 45 Example of a default Octaire splash screen

The splash screen* can be accessed using a terminal emulation program, such as HyperTerminal (see page 26). One of four verbosity settings is specified to provide a level of detail for information on five system components. Verbosity (i.e., wordiness) refers to the amount of information provided; the higher the verbosity setting, the more information is displayed. Only one verbosity setting and one component setting can be entered in a command. The order in which these two settings are entered is interchangeable.

Note: *In a multi-enclosure system, the splash screen displays information only for the enclosure that is connected directly to the PC.*

* AMX reserves the right to add to the contents of the splash screen at any time, without notice.

Verbosity Settings

The verbosity (*v*) settings (*v0*, *v1*, *v2*, *v3*) correspond to the level of detail that will be displayed, with *v0* being the lowest level of detail and *v3* being the highest level. The *v3* setting is not supported for the “all components” setting. The commands `~scr!` or `~scri0v#!` will access the lowest level of detail (verbosity) for all components. The command `~scri#v#!` will display higher levels of detail depending on the values entered for the verbosity settings.

Note: The “all components” setting (*0*) will display the lowest level of detail no matter which verbosity setting is used.

Component Settings

Detailed information for a single system component can be specified by using its identity (*i*) number setting (*i0* through *i4* and *i7*) in the following table. The “all components” setting (*i0*) will display the lowest level of detail no matter which verbosity setting is used.

Component	Identity Number Setting
All Components	<i>i0</i>
Enclosure	<i>i1</i>
Storage Blocks	<i>i2</i>
Communication Interfaces	<i>i3</i>
Hardware and Boards	<i>i4</i>
System Sensors	<i>i7</i>

Tip: The information in the above table is displayed when you enter `~scr!` or `~scri0v1!`

General Rules for Octaire Diagnostic Commands

- In a multi-enclosure system, the splash screen displays information only for the enclosure that is connected directly to the PC
- If the verbosity setting is omitted, the verbosity level will be the lowest (*v0*)
- The component setting must be included; otherwise, entering any of the verbosity settings alone will result in a display equivalent to `i0v0`
- If both settings are omitted during a query (`~scr!`), the information displayed will be at the lowest verbosity level for all components (`i0v0`)
- At system boot, the information for an `scri1v0!` command is displayed

Using BCS to Access System Diagnostic Information

Instructions are provided for accessing the lowest level of verbosity for all components and for accessing a specific level of verbosity for a specific component.

To access the lowest level of verbosity for all components:

1. Enter `~scr!` or `~scri0v#!` (*#* = any verbosity setting)

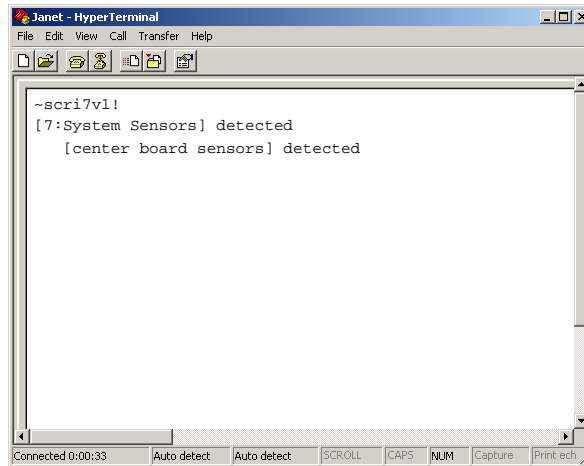
To access a specific level of verbosity for a specific component:

2. Enter `~scri#v#` where the first *#* is the component (identity) setting and the second *#* is the verbosity setting (either may be specified first).
All combinations are valid except for `v3i0`, which is not supported.
3. Enter `!` (to send the command).

Example: `~scrv3i7!` or `~scri7v3!` (displays the highest level of detail for the system sensors).

Splash Screen Examples

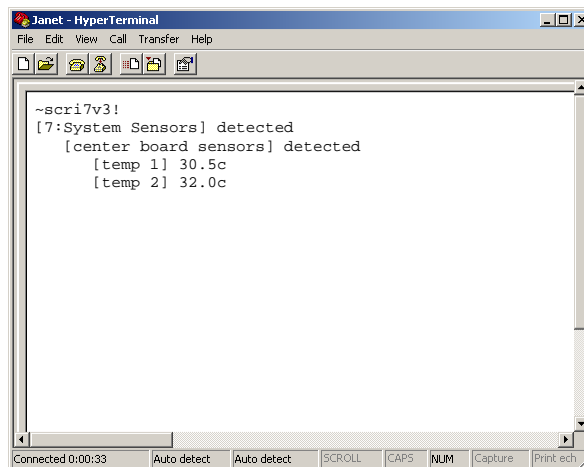
Following are three examples of splash screen information that could display when different verbosity/component settings are specified. Depending on the amount of detail provided, you may need to scroll to see the entire display.



```

~scri7v1!
[7:System Sensors] detected
  [center board sensors] detected
  
```

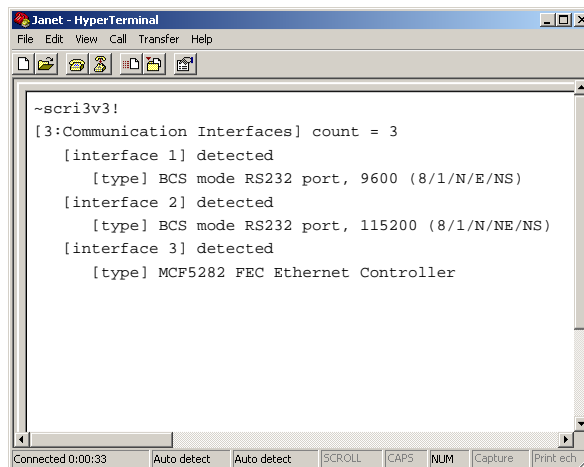
FIG. 46 Display for i7v1 (component 7, verbosity 1)



```

~scri7v3!
[7:System Sensors] detected
  [center board sensors] detected
    [temp 1] 30.5c
    [temp 2] 32.0c
  
```

FIG. 47 Display for i7v3 (component 7, verbosity 3)



```

~scri3v3!
[3:Communication Interfaces] count = 3
  [interface 1] detected
    [type] BCS mode RS232 port, 9600 (8/1/N/E/NS)
  [interface 2] detected
    [type] BCS mode RS232 port, 115200 (8/1/N/NE/NS)
  [interface 3] detected
    [type] MCF5282 FEC Ethernet Controller
  
```

FIG. 48 Display for i3v3 (component 3, verbosity 3)



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