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Suite 16 Modules

Suite 16 is appropriately named as it is a system that is built using a suite of modules and components. These modules and other components allow extraordinary flexibility in the design of a distributed entertainment system. This section will focus on the three modules that are inserted into the Suite 16 Multi-Room (MR) Controller Chassis, the AVP-16.

AVP-16 Multi-Room (MR) Controller Chassis

The AVP-16 is a chassis that can hold up to three Suite 16 Modules. Several AVP-16s can be used in a single system. The AVP-16 features a front panel power/reset switch, front panel RS-232 9-Pin “D” style connector, and a removable plexi-glass window. This window will permit access to Suite 16 Module adjustment controls as well as permitting Suite 16 Module Status LEDs to be seen during normal operation.

The Suite 16 is completely modular including the Power Supply and Control I/O section. The Power-Control Module slides in from the back of the AVP-16 chassis and can be removed in the event service is required.

The back of the AVP-16 also features two Expansion ribbon cable connections. These are only used when multiple AVP-16s are employed on a single project.
A-16 Audio Input Module

Only one A-16 Audio Input Module is used per Suite 16 System.

Audio Inputs

The A-16 features 16 stereo RCA jacks which are the sixteen audio inputs to the system.

Input Level Trim Control

By and large most audio source components put out audio signal levels that are close to each other. However, some sources run significantly louder while other sources are significantly softer. This becomes an issue as you change inputs in a room, as volume levels can vary between selected components, even though the room's volume control has not been altered. To compensate for varying output levels between source components, the Suite 16 System permits a different input level for each of the sixteen audio inputs. This feature is set in software.

Input Tracking Low Voltage Triggers

The A-16 also features two 9-pin "D" style connectors (non-RS-232). The top connector includes a common ground pin and then eight other pins corresponding to inputs 1-8. The bottom connector also features a common ground pin and eight connectors which correspond with inputs 9-16. When an input is selected, its corresponding pin produces a 12VDC output. This trigger can be used to activate a source component function.

When using ADA’s ACC-48 Source Component AC Switcher, these two connectors can be attached to up to two ACC-48s each. This will provide AC component switching (based on activity) for as many as sixteen source components. As with most every ADA System, Suite 16 permits the AC to be removed from source components when they are not being used. This is intended to preserve the life of the device as even standby-power is removed when the component is not in use. This may not be an option for devices with built-in clocks or devices that require AC at all times.

Please note, that each switched outlet on the ACC-48 is limited to 2.5 amps.
The two low voltage triggers can also be used to engage an “On” and an “Off” IR command when using ADA’s IRL-5000 to control source components.

The IRL-5000 is an advanced version of ADA’s IRL-3000 Infrared Learner and uses the same PC software program to capture, test, layout, and label IR commands from standard source components. While the IRL-5000 is used on Suite 16 Systems when employing ADA keypads (so that the keypads transport function buttons can control the source components), the IRL-5000 can also be controlled serially making it an ideal component to add to a Suite 16 even if no ADA keypads are being used. A single IRL-5000 can operate as many as eight source components. Two IRL-5000’s can be used to control sixteen components when set to different addresses. The IRL-5000 has nine address settings.

The IRL-5000 features two 9-pin “D” connectors. The connector on the upper left side is used for programming and is connected to a PC. The connector at the bottom of the IRL-5000 is wired in parallel with the ACC-48(s). By using this feature of the IRL-5000, one can initiate an IR signal or sequence (macro) when a source is first selected and also initiate an IR signal or sequence when that source is no longer being used. Since the IRL-5000 permits the use of delays, you can use both the ACC-48 and IRL-5000 together such that as a source is selected, it gets AC from the ACC-48 and then is issued a command (i.e. play). Another option for DSS receivers would involve programming the OFF function with a macro to reset the DSS receiver to the favorite music channel. Thus, every time the DSS is no longer being used on the system, the IRL-5000 resets it to this station. When it is again selected, the favorite channel is already tuned in. This permits one button operation while completely removing AC from the component when it is no longer being used.

Naturally, one can simply use the IRL-5000 without employing ACC-48s. When using an ADA Trinity Tuner, ADA recommends using at least one IRL-5000.

The diagrams on the next two pages show an IRL-5000 employed with two ACC-48s. The diagram on page 6 details the complete sixteen source system with two IRL-5000s and four ACC-48’s.

**LVI-3800 Low Voltage Relay**

The LVI-3800 is used when controlling source components that are not capable of control via either serial or IR control interfaces. Older sources or for example, slide projectors fall into this category. The LVI-3800 features eight relays which close momentarily when transport buttons are pressed on the MC-5000, MC-3000, and MC-3800 keypads. The LVI-3800 is an ADA Bus device and connects to an open ADA Bus jack on any wire harness.
**PP-1200 Phono-Preamplifier**

If you still enjoy playing records, there is no reason not to be able to access them through your whole-house Suite 16 System. Most turntable use a moving-magnet cartridge which requires special preamplification. The PP-1200 Phono Preamplifier provides this preamplification and permits the connection of a phonograph to the Suite 16.
The ACC-48 features jumper pins (shunting pins) that determine which sources the outlet will activate with. Several jumper pins can be inserted for any one outlet. In the case of the Trinity Triple Tuner, the Trinity has only one AC cord, even though it acts like three components to the system. As such, three jumper pins would be inserted into the Trinity Tuner’s ACC-48 outlet such that, whenever any of the three tuner modules is accessed, the tuner will get AC and engage.
Party Functions
There are four “Party” functions which when activated, cause rooms to switch to the selected source. As room outputs are programmed to track party groups, this feature is discussed under P-16 features.

Paging Features
The A-16 also features a seventeenth input for paging. Unlike other systems, the Suite 16’s paging feature is extensive. Included are three types of triggers (audio sensing, voltage sensing, and serial controlled). Each trigger activates its own “paging group” of which there are eight (six paging groups can be activated serially). Each paging group can be disabled (from ever occurring) and any room can be a member of none, one, several or all paging group(s). Serial control also permits room specific paging (for room-to-room paging). When a paging trigger is activated, rooms that are directed to engage with that page load all current settings into memory and then recall a paging volume preset, while setting tone controls to flat and filters off. When the page is terminated, the previous settings are recalled. While each paging feature needs to be turned off in order to return the room to normal operation, a user can also clear a page while in progress by selecting another source in that room or by turning the room off (This will remove the page for only that room. If other rooms are part of this paging group, they will still page through.). Resetting power to the Suite 16, will also reset all paging triggers to standby.

Paging Audio Input
This balanced audio input (600Ω) is accessed through the removable 5-pin screw terminal connector on the far right side of the A-16 Module. Here Pin 1 is common (shield), Pin 2 is Positive (+), and Pin 3 is Negative (-). This input can be connected to the audio output of telephone systems or some other type of microphone mixing device.

Paging Compressor
The A-16 also features a paging compressor that limits the level of the audio paging signal regardless of the actual input level. There is a trim pot to adjust the compressor, which is located behind the AVP-16’s removable front panel plexi-glass plate.

Paging Volume Preset
Each room has a paging volume preset that is set in software. This volume level is independent of the volume level of the music playing in the room.

Paging Triggers
The A-16 features two non-serial controlled paging triggers. The first is based on audio sensing through the balanced audio input previously described. There is a trim pot to adjust sensitivity of the audio sensing trigger, which is located behind the AVP-16’s removable front panel plexi-glass plate. When engaged, the audio sensing trigger engages a group of rooms. The rooms that are activated with the audio sensing trigger are predetermined in software by the installer. The audio sensing trigger can be defeated in software so that it never triggers the paging function. The audio sensing trigger, once activated, must be deactivated in order to return the rooms to their prior state.
The second trigger is a low voltage input trigger (3-24V AC or DC). It connects to the A-16 on the removable 5-pin screw terminal connector on the far right side of the A-16 Module (Pin 4 is [+] and Pin 5 is [-], polarity does not matter for an AC trigger). The low voltage trigger, once activated, must be deactivated in order to return the rooms to their prior state.

The A-16 Paging trigger can also be controlled serially. Here the paging functions are much more robust. There are a total of six paging room groups. Rooms can be programmed by the installer in software to either be part of one or several groups. Rooms can also be excluded from all pages. Also, individual rooms can be selected to receive a page. This will permit room specific paging. Again, once a serial trigger is engaged, it must be deactivated in order for the room to return to its prior state.

**P-16 Preamplifier Module**

The P-16 Preamplifier Module is the most advanced stereo preamplifier for multi-room use. With special attention placed on the sound quality of the Suite 16 System, the P-16 has a host of features that are ideal for custom installation. The first AVP-16 can house one or two P-16’s for up to 32 zones. Additional P-16s can be installed into additional AVP-16s for up to 96 zones (six P-16 Modules).

**Audio Outputs**

The P-16 houses sixteen stereo RCA audio outputs. Each audio output operates as its own zone with independent: source selection; on, off, and muting; volume, bass and treble control; maximum volume level; balance control; and even loudness and stereo enhancement filters. The P-16 can be set so that zones down-mix to mono. Zones can also be set to provide either a variable (signal to amplifiers) or fixed (signal to home theater preamplifiers or recording devices) level audio output.

**Input Selection**

Each zone of the P-16 can directly access any one of the sixteen audio inputs independently of each other. A zone turns on with an input selection. There are a total of eighteen serial commands for a zones input selection, sixteen for the direct access of sources, and two more commands for input up and input down selection.

**Volume and Tone Controls**

Each zone of the P-16 features independent volume, bass, and treble control. Serially, each of these features has three commands, up, down and direct. As expected, the up and down functions will raise or lower these parameters. The direct function is a numeric command that immediately engages that specific level. This feature is ideal when creating sliders on touch screen controls.
Volume and Tone Presets
Each zone has four volume and four tone presets. Each of these eight presets has a serial command to store the settings and another to recall these settings. The tone presets recall and store both a bass and treble level as well as Loudness and Stereo Enhancement filter settings. ADA suggests recalling both a Volume and Tone Preset when a room is turned on to ensure that acoustic levels are appropriate.

Maximum Zone Volume Level
To prevent speaker damage, the installer can set in software, a zones maximum volume level such that the user can never exceed this volume level.

Paging Volume Level
Because audio being paged has different characteristics than music, special concern needs to be placed on the level of the audio signal during a page. If for example, music is playing loud in a zone, should a page be introduced at the same volume level, one might expect to speaker damage. To prevent this from occurring, each zone of the P-16 features a paging volume preset level. During a page, the zone will set all tone controls flat, turn off all filters, and recall the paging volume preset. Once the page is terminated, the previous settings are recalled if that zone was previously on.

Balance Control
In some zones, it will be necessary to alter the balance of the audio levels between speakers. To facilitate in this matter, the P-16 features a powerful balance control section. There are three serial commands that control a room’s balance level: balance left, balance right, and balance equal. Balance equal will instantly center the audio between the two speakers. There are also two balance presets with four serial commands: balance preset 1 recall and store, and balance preset 2 recall and store. If a room’s balance needs to be altered from the equal position, ADA suggests storing the appropriate balance level in one of the two presets and recalling it on start up.

Zone Turn-On Preset
Each zone of the P-16 can be set to either turn on to its last used state or presets 1. When engaging with preset 1, Volume Preset 1, Tone Preset 1, and Balance Preset 1 are all recalled as the zone turns on. This provides the installer with the ability to load into memory, ideal acoustic characteristics when a room is first turned on. This will prevent a room from coming on with inappropriate volume, bass, treble, or balance settings, even if these settings where used the last time the room was on.

Party Zone Groups
There are four party zone groups which are set, cleared, and engaged serially. This feature permits rooms to track the same source component and can be used to engage several zones to the same source during a party. The feature can also be used for rooms that are open to each other. In this application, it may be inappropriate to have one source component playing in one room, while another is playing in an adjacent area because of interference. As such, these rooms can have their control source selection buttons transmit one of the four party commands. All rooms set to track that specific party function will turn to the same source. For example, an entry foyer, living room, and dining room are open and adjacent to each other. Each room has its own control. While it is desired that each area maintain independent volume, tone, balance control, etc., it is not ideal that each area be capable of
playing different sources at the same time. As such, the installer can program the controls in these rooms to send party input commands instead of the standard input commands. As such, whenever someone selects CD in the living room, the dining room and entry foyer will turn on to CD as well. There are no restrictions as to which rooms track which of the four party presets or whether they do not track any. Rooms can track several party presets as well. Rooms do not have to have a control to engage with a party function from another room.

**Mute and Room Off/All Off**

Each zone features three serial mute commands: mute on, mute off, and mute toggle. There are also two additional commands involving audio, room off and all off.

**Stereo Enhancement and Loudness Contour Filters.**

Each zone provides the option to engage/disengage two filters. These filters are used when either speaker size, placement, or room acoustics are less than perfect. The Stereo Enhancement filter opens the sound stage between two speakers. If speakers are extremely close together or in a position that is less than ideal, this filter may be of use. The Loudness Contour Filter is used to enhance the bass output of speakers. If speakers have small bass drivers or are in a position that baffles most of the bass information, this filter may be of use. Both filter settings are encompassed in the Tone Presets.

**Stereo & Mono**

Here the P-16 is uniquely outfitted with both software and hardware options. Serially, one of three preamplifier mixing options exist: stereo, mono input left, and mono input right. Stereo (normally used), passes right and left channel audio inputs to the preamplifier stage. Mono input left or right, pass only that channels information to the preamplifier stage. This feature is useful if stereo recordings contain two completely different channels of information whereby it is desired to eliminate one channel completely (language recordings). While the software features may be of little use, the hardware mono/stereo feature is extremely important. While most rooms will most likely be set (hardware) for stereo (the P-16s default state), it may be desirable for some zones to output a mono signal. Examples of such areas may include hallways, galleries, outdoor areas, or even rooms that might contain only one speaker (sauna). To down-mix to mono, the installer must alter a jumper-pin located on the P-16 Module. This will require powering down the AVP-16, removing the P-16 Module, locating the appropriate jumper (shunting pin) on the P-16 circuit board and inserting the jumper. At this time, that zones audio output will be same on both right and left channels, regardless of the separation of the input signal.

**Variable and Fixed Outputs**

The P-16 also permits any zone to have its output at either a fixed audio level (unprocessed) or variable level (all previously mentioned preamplifier features). This is extremely useful when desiring to include home theater systems or recording devices onto a Suite 16. Normally, the P-16s are inserted into an AVP-16 where zones 1-12 are set to variable (for multi-room audio) and zones 13-16 are set to fixed (the line-level audio signal can be routed to the input of a high-end home theater preamplifier, A/V receiver, high-end two channel preamplifier, TV audio input, or recording device). To alter any zone, you must locate that zones appropriate jumper pins (shunting pins) which are located on the P-16 Module circuit board and move them to the alternate setting. There are two jumper pins per zone (for left and right channels). This will require powering down the AVP-16 and removing the P-16 Module.
**Low Voltage Triggers**

The P-16 features three low voltage trigger outputs: two 9-pin “D” type connectors (these are not RS-232) and one removable five-pin screw terminal connector. The top 9-pin “D” connector provides a single ground pin and six pins that go to +12VDC individually with respect to zones 1-6. Likewise, the bottom 9-pin “D” connector provides a single ground pin and six pins that to go +12VDC for zones 7-12. These zone triggers can connect directly to the PTM-1225 or PTM-1260 Twelve Channel Power Amplifiers. These amplifiers utilize the zone triggers to mute and unmute zones as they are engaged by the P-16. A standard straight-through 9-Pin “D” male-to-male cable can be used (both PTM-1225 and PTM-1260 Power Amplifiers come with this cable).

The removable 5-pin screw terminal connector is used to provide a low voltage trigger for zones 13-16. Here, pin 1 is ground (-), pin 2 engages (+12VDC) with zone 13, pin 3 engages with zone 14, pin 4 engages with zone 15, and pin 5 engages with zone 16. ADA provides the ACC-3 Low Voltage Triggered AC Controller which can be used to turn on any size ADA power amplifier.

**Power Amplifier Options**

Two ADA power amplifiers offer easy connections directly to the P-16 Module.

The PTM-1225 will provide medium power to up to six zones (25W/Ch @ 8Ω, 45W/Ch @ 4Ω, stable to 2Ω).

The PTM-1260 will provide high power to up to six zones (Unbridged - 85W/Ch @ 8Ω, 135W/Ch @ 4Ω, stable to 2Ω). You can opt to use two PTM-1225s, one PTM-1225 and one PTM-1260, or two PTM-1260s.

The PTM-1260 can also be set so that channel pairs are bridged, from 12 to 10, 8, or 6 channels. In bridged mode power increases to 350W/Ch into 4Ω. In bridged mode, the PTM-1260 is stable to 4Ω.
Both the PTM-1225 and PTM-1260 feature the six zone low voltage trigger, that mutes zones when they are not in use. Connection of this trigger is easy with the provided 9-pin D style ribbon cables. You can opt to use two PTM-1225s for medium power or two PTM-1260s for high power. You can also use one of each as shown on the next page.
The diagram below shows that zones 1-6 are running on medium power using a PTM-1225, while zones 7-12 are running on high power using the PTM-1260 (as a six zone/twelve channel amplifier - unbridged). When duplicating this scenario, it does not matter whether the PTM-1260 is running zones 1-6 or 7-12.

Whether you are using the PTM-1225 or the PTM-1260 power amplifiers, you will need to connect the stereo line-level RCA audio cables between the P-16 Module and the amplifier inputs. These cables are in addition to the ribbon cables that trigger the amplifier zones.

ADA suggests using cables that are of appropriate length that are non-directional. Directional cable may cause ADA amplifiers to oscillate.
If zones require ultra-high power amplification, ADA suggests using PF-2501 Power Amplifiers (250W/Ch @ 8\(\Omega\), 450W/Ch @ 4\(\Omega\), stable to 2\(\Omega\)) along with an ACC-3 AC Controller. If zones require driving a great many speakers (up to sixteen pairs @ 8\(\Omega\)), ADA suggests using a PF-201 (60W/Ch @ 8\(\Omega\), 240W/Ch @ 1/2\(\Omega\)) along with an ACC-3 AC Controller. These amplifiers are optimally running on zones 13-16 because of screw termination connectivity of the ACC-3 to the P-16.

The PTM-8150 Eight Channel High Power Amplifier can be used to provide high power to zones 13-16. Again use an ACC-3 to turn on the PTM-8150 when any of these four zones are turned on. On the P-16, use a small jumper wire to terminate together pins 2-5 and use a common ground (-).
Home Theater (or Recording) Set Up

When working with home theater preamplifiers, whether they are in the form of an AV receiver or separate preamplifier and amplifier, you can assign a Suite 16 zone output to the theater room. As such, the theater preamplifier can play the same components that are playing through the rest of the home. To do this, connect a zone’s line-level audio signal to your home theater preamp or receivers multi-room input (or Auxiliary input). Prior to making these connections, you will first need to set that zone’s preamplifier output to fixed. This will require pulling the P-16 module out slightly so that the Fixed/Variable jumper pins can be moved from the Variable position to the Fixed position. This same procedure is used when connecting a Suite 16 zone output to a recording device which also will require a fixed line-level signal.

In the example above, zone 16 is set to fixed audio output and is sending signal to the Cinema Rhapsody Mach II on input 8 (Multi-Room). For zones 13, 14, and 15, a PTM-6150 Six Channel Amplifier is used in conjunction with an ACC-3. Here, the low voltage triggers for these zones are combined to trigger the ACC-3 when any of these zones is turned on.
Amp Trigger Jumping on 9-Pin D Connectors

When more than just a few zones require greater power, several ADA amplifiers options exist including the PTM-6150 (6 x 150W/Ch @ 8Ω, 250W/Ch @ 4Ω, stable to 2Ω), PTM-8150 (8 x 150W/Ch @ 8Ω, 250W/Ch @ 4Ω, stable to 2Ω), and PTM-1260 (operating in bridged mode - 6 x 175W/Ch @ 8Ω, 350W/Ch @ 4Ω, stable to 4Ω). While the PTM-1260 has zoned triggers built-in, the PTM-6150 and PTM-8150 will require an ACC-3 to turn them on. Again, one can combine zone triggers together to engage a single amplifier, even if it is powering more than one zone.

There are two ways one can combine triggers together. ADA suggests using the DB-9 9-Pin Termination Block but you can also cut and splice a ribbon cable. If you choose to use the DB-9, you will need one for every P-16 D connector you will be triggering from and another for every PTM-1260 that is running in bridged mode. When doing so, remember to switch the appropriate channels to bridged mode on the back of the PTM-1260 and that in this mode, the amplifier is only stable to 4Ω. The PTM-1260 can be bridged from 12, to 10, 8, or 6 channels.

The diagram below shows a PTM-6150 with Ch. 1 & 2 = zone 1, Ch. 3 & 4 = zone 2, and Ch. 5 & 6 = zone 3.

The diagram below shows a PTM-1260 in bridged mode for all channels such that Ch. 1 & 2 = zone 1, Ch. 3 & 4 = zone 2, and Ch. 5 & 6 = zone 3.
V-16 Video Switching Module

The V-16 Video Switching Module expands Suite 16’s distribution capabilities to include composite video as well as audio routing. Much like the P-16 Modules, the V-16 can be used in multiples for up to 96 zones of video switching (up to six V-16 Modules).

Video Inputs
The V-16 features sixteen video inputs per V-16 Module. When using multiple V-16 Modules, one must Y split the composite video signal of a source component to distribute it to more than one V-16. The V-16 features Hi-Z termination making video splitting possible without signal loss.

Video Outputs
The V-16 features sixteen video outputs per V-16 Module. These can be connected to TVs, monitors, plasma TVs, projectors, video touch-screen controls, etc.

Video/Audio Tracking
The V-16 can be programmed in software such that any of its sixteen inputs tracks the corresponding audio input. As such, when either a DSS, DVD, VCR, or computer game input is selected, the appropriate video signal can automatically be routed to the room’s TV or other video display. Alternately, video inputs can be selected independently of audio signals, ideal when one might want to listen to music while viewing a stock-ticker or sporting event.

Video Options
Because the V-16 has sixteen video inputs and sixteen video outputs, it may have more connections than one might think can be used in a single system. For example, one might only have 10 audio/video sources, 6 audio only sources, and only 8 rooms with a video display. That would leave six video inputs and eight video outputs unused. This may leave open the door to include up to 6 closed-circuit TV cameras which could be switched to any of the 8 TVs. On the output side, the eight unused video outputs could be used to drive video-capable touch screen controls. This makes the V-16 not just an ideal video switcher for entertainment purposes, but also ideal for integration of security cameras and touch screen preview video displays.

Video Output Triggers
The V-16 features two 9-pin “D” type connectors (non-RS-232) that engage a +12VDC signal when the corresponding video output is selected. The top connector includes a common ground pin and the eight other pins correspond to video outputs 1-8. The bottom connector also features a common ground pin with the remaining eight pins corresponding to video outputs 9-16. These triggers can be used to trigger video monitors or other source devices when a video output is selected.
Programmed Video Triggers
The V-16 also features five programmed triggers. The removable 5-pin screw terminal connector features ground (-) on pin 1, and 5-24V AC or DC input voltage sensing triggers on pins 2-5. These are used to engage multiple switching functions in that are programmed by the installer. All four triggers can also be serially engaged. The fifth trigger can only be engaged via serial control.

Interactive Use of Triggers
The video triggers can engage more than just a single video input when a trigger is activated.

For example, the main entrance of the home has the door bell set to engage an audio and video trigger. The audio trigger is set to line-sensing using the door chime mechanism as the audio trigger source. When the door bell is pressed, the chime will play through selected rooms using the audio sensing paging input. The main entrance also has two closed circuit TV cameras monitoring the doorway. These input into the V-16 module on inputs 14 and 16 (completely arbitrary inputs). When the door bell is pressed, not only will the chime play through the system, but also the video cameras can be displayed. During setup, you can determine which video outputs follow any one of the triggers. If an output is dedicated to a video capable touch screen and that touch screen is set to monitor Trigger 1, then when the door bell is pressed, that touch screen will get the cameras at the front door.

Cycle Count & Dwell Time
In the case where more than one camera is set to a specific trigger, the V-16 features both a cycle count setting (1-99 cycles) and a dwell time setting (1-60 seconds). In the example above, when the door bell is pressed, the touch screen will display both camera 1 and camera 2 where you can determine how long each camera is held in frame and how often the cycle repeats itself. Cycle count and dwell time are global settings affecting all four triggers. All sixteen inputs can be set to follow a trigger if desired. When only a single camera is set to a trigger, its image remains steady even if numerous cycles are employed due to the requirements of other triggers.
AVP-16 Baud Rate, Zone, & Paging Settings
The AVP-16 front panel is remarkably void of clutter. In addition to the main power switch, the front panel RS-232 I/O, there is only a smoked plexiglass plate through which several LEDs are visible. During setup, this plate may need to be removed to access options for the A-16, P-16 or V-16 modules.

AVP-16 Plexiglass Plate Removal
There are four screws that secure the front panel plexiglass plate. To remove the plate, simply remove these four screws.

A-16 Module Front Panel Setup
The A-16 Audio Input module features twenty LEDs which indicate the presence of voltage (power), which inputs are active (1-16), and whether the audio trigger is engaged. The diagram below details these LEDs and also shows the position of three trim pots.
The compression slope trim pot is used to compress the paging audio input signal. This feature will prevent an input signal that is too high from being broadcast at that level. While each room has its own paging volume level to prevent speaker overdrive, the compression slope adjustment is used to prevent the input signal from being distorted.

The input level adjustment trim pot is used to determine the level of the audio input signal. With this adjustment, low level signals can be raised or signals that are too hot can be lowered.

The trigger level trim pot is used to adjust the sensitivity of the audio input trigger. There are a total of eight paging triggers. Six of these are serially controlled, one is a voltage trigger, and one trigger is audio sensing. This trim pot is used to set this trigger such that it engages and disengages appropriately.

**P-16 Module Front Panel Setup**
The P-16 Preamplifier module features twenty-two LEDs which indicate data transmission and reception, the presence of voltage (power), which zones are active (1-16), and whether the system is on. The diagram below details these LEDs and also shows the position of the address selector. The address selector sets the address of the P-16 module since as many as six P-16s can be used for up to 96 zones. Address “0” is the default address for zones 1-16 operating at a baud rate of 19200.

**V-16 Module Front Panel Setup**
The V-16 Video Switching module features twenty-two LEDs which indicate data transmission and reception, the presence of voltage (power), which outputs are active (1-16), and whether the system is on. The diagram below details these LEDs and also shows the position of the address selector. The address selector sets the address of the V-16 module since as many as six V-16s can be used for up to 96 zones. Address “0” is the default address for zones 1-16 operating at a baud rate of 19200.

<table>
<thead>
<tr>
<th>Dial Address</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
<th>(E)</th>
<th>(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-16 Zones</td>
<td>1-16</td>
<td>17-32</td>
<td>33-48</td>
<td>49-64</td>
<td>61-80</td>
<td>81-96</td>
<td>N/A</td>
<td>N/A</td>
<td>1-16</td>
<td>17-32</td>
<td>33-48</td>
<td>49-64</td>
<td>61-80</td>
<td>81-96</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>V-16 Zones</td>
<td>1-16</td>
<td>17-32</td>
<td>33-48</td>
<td>49-64</td>
<td>61-80</td>
<td>81-96</td>
<td>NF</td>
<td>1-16</td>
<td>NF</td>
<td>17-32</td>
<td>1-16</td>
<td>17-32</td>
<td>33-48</td>
<td>49-64</td>
<td>61-80</td>
<td>81-96</td>
<td>NF</td>
</tr>
<tr>
<td>Baud Rate</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
</tbody>
</table>
AVP-16 Configuration Options

The AVP-16 is the Suite 16 chassis that can house up to three cards. As both the A-16, P-16, and V-16 are designed to be interchangeable, here are some options regarding configuration of the primary AVP-16.

Basic Setup - One A-16 and One P-16

This configuration is the most basic of all Suite 16 options in which 16 audio components are routed to 16 audio zones.

Double Audio Setup - One A-16 & Two P-16s

This configuration adds an additional 16 zones for a total of 16 audio components to 32 audio zones.

Basic Video Setup - One A-16, One P-16, and One V-16

This configuration adds video to the basic 16 audio sources to 16 zone configuration. Because the video card can have outputs either track or not track the 16 audio inputs, one can treat the 16 video sources as additional inputs and outputs. For example, out of the 16 audio sources, only 10 have a video signal. That would leave 6 video inputs available for non-audio video input devices such as cameras.
Matrix Switching - S-Video, Component, or RGBHV

For applications where an installation requires simultaneous switching of multiple discrete video signals, any Suite-16 V-16 Video Module may be set up as a slave card. This is useful for S-Video (Y & C), component video (Y, Cr, Cb), or HDTV video (RGBHV) switching. Furthermore, because of the Suite-16s value, configuration of a Suite 16 for matrix switching is extremely competitive.

As such, a single video switching command can activate switching of inputs for more than just a single V-16 module. For example, when using the S-Video configuration below, if video input 1 is selected in room 1, both video cards (one for C and one for Y), will switch together.

There are special technical issues that do come into play when switching multiple videos cards with a single command. In order for this feature to work, all V-16 modules need to be set to the same room address. As such, when a single command is issued, all cards will switch. The only problem that occurs when using standard V-16 addresses, stems from the feedback created by all cards. As each card switches, it will return confirmation of the switch in the form of ASCII feedback. It is this feedback that may cause problems. As multiple cards respond, the feedback may get corrupted. To prevent this from occurring when using the AVP-16 and V-16 modules as a matrix switcher, ADA has added two additional V-16 addresses that defeat feedback, preventing data corruption, while still permitting full control.

Changing of the V-16 Address

Located behind the removable plexiglass panel on the front of the AVP-16, each V-16 module has a rotary DIP switch which sets the address for the card. There are a total of sixteen address options. Address 0 refers to rooms 1-16 for systems operating at 19200. Address 1 is for rooms 17-32 at the same baud rate. Alternately, address 9 is for rooms 1-16 for systems operating at 1200 baud while address 10 (sometimes noted as address A) is for rooms 17-32 at the same baud rate.

<table>
<thead>
<tr>
<th>Dial Address</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
<th>(D)</th>
<th>(E)</th>
<th>15</th>
<th>(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-16 Zones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>1-16</td>
<td>17-32</td>
<td>33-48</td>
<td>49-64</td>
<td>61-80</td>
<td>81-96</td>
<td>N/A</td>
</tr>
<tr>
<td>V-16 Zones</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-16</td>
<td>17-32</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>NF = No Feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-16</td>
<td>17-32</td>
<td>33-48</td>
<td>49-64</td>
<td>61-80</td>
<td>81-96</td>
<td>1-16</td>
</tr>
<tr>
<td>Baud Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
<td>19200</td>
</tr>
</tbody>
</table>

There are V-16 Video Module addresses that are specifically designed not to provide feedback. Address 6 refers to rooms 1-16 at 19200 without feedback and Address 7 refers to rooms 17-32 at 19200, also without feedback. For 1200 baud systems without feedback, address 14 (also known as address E) refers to rooms 1-16 while address 15 (also known as address F) refers to rooms 17-32. These addresses are to be used on the second, third, fourth, and fifth V-16 modules. The first module uses the standard address. Here it is important that all room and baud rate groups match.
If you have a Suite-16 for 16 rooms that is switching composite video and you have a component video switching matrix in a separate AVP-16 chassis, then you might opt to use the room group address of 17-32 for the matrix switcher. As such, you could connect the Suite-16 audio video system running 16 zones with composite video (addressed for rooms 1-16) and the 16 x 16 component video matrix Suite 16 (set to room address 17-32) on the same ADA Bus network without conflict.

In the event, you have 17 or more rooms on a Suite-16 setup for audio and video switching, you will need to communicate to the Suite-16 setup for component video switching, through a separate com port. Here you could opt to run the matrix switcher on any of the two room group addresses, as this switcher is not going to be connected directly to the Suite-16 audio video system.

**S-Video Switching**
This configuration uses a single AVP-16 chassis outfitted with two V-16 modules. One module is connected to up to 16 S-Video “Y” outputs. The second module connects the “C” S-Video outputs. The end result is a 16 x 16 S-Video switcher. Here the first card needs to be set to the 0 address while the second unit is set to address 6. You can also uses addresses 1 and 7 respectively. For 1200 baud systems, addresses 8 and 14 could be used or addresses 9 and 15.

**Component Video Switching**
This configuration uses a single AVP-16 chassis outfitted with three V-16 modules. One module is connected to up to 16 “Y” outputs. The second module connects the “Cr” component outputs. The third card connects the “Cb” component outputs. The end result is a 16 x 16 component video switcher. Here the first card needs to be set to the 0 address while the second and third cards are set to address 6. You can also uses addresses 1 and 7 respectively. For 1200 baud systems, addresses 8 and 14 could be used or addresses 9 and 15.

**RGBHV Video Switching**
This configuration uses a two AVP-16 chassis outfitted with three V-16 modules in the first chassis and two in the second. One module is connected to up to 16 “R” outputs. The second module connects the “G” video outputs. The third card connects the “B” video outputs. In the second chassis, the first card is connect to the “H” video outputs and the second card is connected to the “V” video outputs. The end result is a 16 x 16 component video switcher. Here the first card needs to be set to the 0 address while the second, third, fourth, and fifth cards are set to address 6. You can also uses addresses 1 and 7 respectively. For 1200 baud systems, addresses 8 and 14 could be used or addresses 9 and 15. An RGBHV switcher is a combination of the two diagrams above.
AVP-16 Slave-Unit Configuration Options

Slave Audio Setup - In addition to the first AVP-16, a 2nd chassis w/One P-16
This configuration is in addition to the primary AVP-16 and as such, does not require an A-16 Audio Input Module. This chassis adds 16 zones to the primary unit.

Slave Audio Setup - In addition to the first AVP-16, a 2nd chassis w/ Two P-16s
This configuration adds 32 zones to those in the first chassis. If the first chassis houses two P-16s and the second houses two P-16s, the zone count is 64.

Slave Audio Setup - In addition to the first AVP-16, a 2nd chassis w/ Three P-16s
This configuration adds 48 zones to those in the first chassis. If the first chassis houses two P-16s and the second houses three P-16s, the zone count is 80.

Slave Audio Setup - In addition to the first AVP-16, a second chassis w/ One P-16 & One V-16

WARNING! Risk Of Hazardous Energy!
Make Proper Connections.
AVERTISSEMENT! Energie Electrique
Voir La Notice De Fonctionnement.
CAUTION: Disconnect Supply Before Servicing.
ATTENTION: Debrancher Pour L'Hautparleur.
DO NOT OPEN Cord Before Servicing.
NE PAS OUVRIR Cord Before Servicing.
CAUTION: Disconnect Supply
ATTENTION: Debrancher
For the Speaker.
DO NOT OPEN

MADE IN U.S.A.

RISK OF ELECTRIC SHOCK
ATTENTION: Dangereuse!
Pour L'Hautparleur.
DO NOT OPEN
**AVP-16 Slave-Unit Setup**

When connecting more than one AVP-16 chassis together, the first chassis is considered the Main Unit and all other chassis are considered Slave Units. The importance here is that the Main Unit will become the one unit with a master turn-on switch. It will also be the chassis to house the A-16 module. Note, that audio is passed to Slave units via two 50 pin ribbon cables (Ribbon-50). Also, the Slave Unit will derive power from the Main Units switched AC outlet using an IEC Female to IEC Male AC cord (IEC-MF). If additional AVP-16 Slave Units were employed, these would connect in line to the previous Slave Units switched AC outlet. Also, the Ribbon-50 cables would have additional connectors on the cable to permit connection of the other Slave Units.
**AVP-16 Main & Slave Unit Power-On Setup**

During initial power up sequencing of multiple AVP-16s, it is important that all chassis initialize together in one step. That is why the system needs to have the AC wired were the first Slave Unit is plugged into the switched AC outlet of the Main Unit and all subsequent Slave Units derive power from the previous Slave Unit’s switched AC outlet. For this reason, ADA will also remove the front panel power button from all Slave Units preventing accidental power sequencing events from ever occurring. As such, Slave Units will have a cover cap in place of the front panel power button.

In order to make certain that the Slave Units sequence power properly, in addition to the appropriate AC wiring and removal of the front panel power switch (on Slave Units), a special switch, located on the bottom of all AVP-16 chassis, needs to be set in the correct position.

The Master Unit needs to have the switch set toward the back of the chassis as in the top illustration.

The last Slave Unit needs to have its switch set to the position toward the front of the AVP-16 chassis.

In the case of multiple Slave Units, those slave units other than the last Slave Unit, need to be set identical to the Master Unit.

Again, only the final Slave Unit is set to the position as shown in the diagram at the bottom.
AVP-16 ADA Bus & Control Wiring

Suite 16 without other ADA components or Keypads
If you are controlling just an ADA Suite 16 from a non-ADA control interface (i.e. touch screen control system), you can connect directly to the Suite-16's rear panel RS-232 jack. Please note, that the front panel and rear panel jacks are in parallel and as such, only one can be used at any one time. Thus, if you use the rear panel connection for the control system, the front panel connection will not operate in the event you wish to use your PC and the Suite-16 Setup software.

Suite 16 with other ADA Bus Components (i.e. Trinity Tuner) but no ADA Keypads.
If you are using other ADA Bus Components, such as the Trinity Triple Tuner or a Cinema Rhapsody (or Reference) Home Theater Preamplifier, yet still only using a non-ADA control system, you will most likely want to network the ADA Bus components on the ADA Bus. By using a WH-2000 Wiring Harness and an ISO-232 ADA Bus to RS-232, you can connect the Suite-16 and other devices directly to the WH-2000 along with the ISO-232. By using the ISO-232 as your RS-232 interface, you can now communicate to all ADA Bus Components through a single control system I/O. Furthermore, you free up the Suite-16's RS-232 port (either front or rear panel but never both at the same time) for connection to PC for programming using the Suite-16 Setup software.

ADA Bus Wiring Connection
ADA Bus wire by specification is a three conductor 18 gauge tin-coated copper wire with an overall braided shield that is 90% braid. These connections are shown in the heavy black lines in the diagram to the right. In the event ADA Bus wire is not available, you can use a four conductor 16 gauge speaker cable. Please note, that ADA Bus connections are intended strictly for short runs, to connect ADA Bus components to the WH-2000 Wiring Harness. Because Suite-16 runs at a baud rate of 19200, long runs of this cable will cause inter-component communication to fail. To maintain the best operation at the faster baud rate of 19200, ADA recommends limiting ADA Bus wiring to a total of 15 feet in length (that is the total distance of all ADA Bus runs). As ADA Bus components are typically in the rack with the Suite-16, several short ADA Bus connectors, 2 feet in length, are usually employed.

Suite-16 with ADA Controls
When using ADA Keypads including the MC-5011, MC-5000, MC-3000, MC-3800, MC-3000 OD or MC-3800 OD, you will need to wire them with a Cat. 5 cable and RJ-45 connectors at both ends. Standard Cat. 5 cable can be used in runs up to 700 feet in length per run. Clean termination of the RJ-45 jack is essential as this wire carries both control and feedback in addition to voltage. A short in this wire can disrupt control and even damage both keypads and mainframe components. Tone out all terminations prior to connection. In the event a Cat. 5 cable is damaged, see alternate wiring options on the next page.

<table>
<thead>
<tr>
<th>PIN NUMBER</th>
<th>COLOR</th>
<th>FUNCTION</th>
<th>COLOR</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN 1</td>
<td>BROWN</td>
<td>+20V</td>
<td>PIN 2</td>
<td>BROWN/WHITE</td>
</tr>
<tr>
<td>PIN 3</td>
<td>GREEN/WHITE</td>
<td>TX-</td>
<td>PIN 4</td>
<td>ORANGE</td>
</tr>
<tr>
<td>PIN 5</td>
<td>ORANGE/WHITE</td>
<td>RX-</td>
<td>PIN 6</td>
<td>GREEN</td>
</tr>
<tr>
<td>PIN 7</td>
<td>BLUE</td>
<td>+20V</td>
<td>PIN 8</td>
<td>BLUE/WHITE</td>
</tr>
</tbody>
</table>

RJ-45 Cat. 5 Cable Connector

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Front

Top
Damaged Wiring Options

In the event that a Cat. 5 cable is damaged, you can still get an MC-5000, MC-5011, MC-3000, MC-3800, MC-3000 OD, or MC-3800 OD to operate, providing that six of the eight Cat. 5 wires are good. To do so, eliminate the first wire and the eighth wire from the RJ-45 connector, at both the wire harness and keypad termination point. Please note, you cannot re-wire an MC-6000 (Keypad with Video Display) in this manner. The above keypads wired in this fashion will work as all other keypads.

CAT-Link and ADA Bus Wiring

In some cases, you may end up upgrading a project previously wired with ADA Bus four conductor wiring. As all Suite 16 keypads have only RJ-45 CAT-Link termination, you will require the BUS-CAT Module per keypad. This in-line ADA Bus screw terminal connection to male RJ-45 jack will permit the keypads to connect to the system. Here ADA suggests using the WH-3000 Wiring Harness (all ADA Bus jacks) to terminate the ADA Bus keypad wiring at the mainframe, while the keypads themselves terminate with RJ-45. In this situation, you will need to run the Suite 16 System at a baud rate of 1200 because the ADA Bus wire to the keypad location is not fast enough for the optimal system baud rate of 19200. When running the Suite 16 System at 1200, the initial (when the power switch on the Suite 16 is first turned on) power up sequence will take slightly longer. Also, at 1200 baud, using more than two Aquarius outputs will most likely slow system operation down some. Otherwise, most system features will work without incidence.

IR Repeating

Whether you are running a Suite 16 System at 1200 baud or the standard 19200 baud, the IR receivers mounted in the MC-5000, MC-5011, MC-3000 and MC-3800 can IR repeat to source components via the IRL-5000. This will permit you to use the original source remote control from a remote room location. Please note, that while most source components operate at 40KHz, some do not and as such, will not IR repeat through the IRL-5000. The IRL-5000 has a trim pot adjustment for the IR carrier frequency which is only used to fine-tune IR repeating. Also, in order to employ IR repeating, the keypad’s IR needs to be active. On the MC-5011, this requires that the jumper pin on the circuit board be in place. On the other keypads, the IR receiver is turned on and off via on-keypad programming. Also, the ports on the IRL-5000 need to have their jumper pins set so that IR repeating is active.
IR Control of the Suite 16

ADA provides the RC-40 hand-held IR Remote Control for wireless infrared control of the Suite-16 and source components. This unit features the same button layout as an MC-5000 and like any system keypad, the RC-40 is programmed for a specific room. As such, it cannot be taken from one room to the next. If this is done, the RC-40 will still control the room it is programmed for. The RC-40 issues commands at 1200 baud (IR cannot be passed at 19200 baud) and can be aimed at an IRR-5000 or any ADA keypad (providing that its IR receivers is active).

For systems set to run at the optimal factory baud rate setting of 19,200, you will need to include a single BRT-1 Baud Rate Translator in the system. The BRT-1 is connected to any open ADA Bus jack on either the WH-2000 or WH-6000. IR commands issued by the RC-40 are up-converted to 19200 by the BRT-1, so the Suite 16, as well as any other ADA Bus component (Trinity Tuner), will perform the function selected.

For systems running at 1200 baud, no BRT-1 is required for IR control. For these systems, all ADA Bus components will need to be set to 1200 baud. ADA strongly suggests avoiding running systems at 1200 baud, especially when using more than 32 zones and/or the Aquarius Hard Drive Jukebox, as there will be too much bus traffic for smooth operation of the system.

ADA also provides the IRR-5000 peep-hole IR Receiver that features an RJ-45 connector. This receiver is ideally run to an open RJ-45 connector on the system wire harness. The IRR-5000 can also be used for only IR repeating, if the system is running at 19200 without a BRT-1.

You can also generate IR commands for capture by other IR transmitting devices using the IRT-232. The IRT-232 connects to your PC and features an IR Transceiver. When using the Suite 16 Tester program and an IRT-232, you can generate most any Suite 16 command in IR form. Again, it is important to remember that all commands are room specific and emit at 1200 baud.
**RF Control**

ADA provides an RF control option for Suite 16 Systems operating at either 1200 baud or 19200 baud. This involves using a single RFT-3000 RF Transceiver per system. The keypads that can be controlled via RF include the MC-5000, MC-3000, MC-3800, MC-3000 OD, and MC-3800 OD. The MC-5011 and MC-6000 cannot be controlled via RF. Please note, while control via RF is possible, with complete feedback, the keypads still will require power.

RF control becomes an option, when wiring is damaged or not the improper type (a two conductor cable). If the wiring to keypad locations provides only four wires, because of damage or improper planning, then employing the RF Control option becomes a viable option. Here, the existing wires can be used for power only, while all communication and feedback take place via RF. Here, in addition to the system requiring one RFT-3000 RF Transceiver, each keypad will also require the RFT-MOD RF Module which is connected to the keypad at the ADA factory.

Alternately, you can employ the RF Control option for rooms where no wire can be run. In this case, instead of using an in-wall keypad, you can use the MC-5000 Table-Top control with RFT-MOD. This keypad will ship with a power supply which can be plugged into any AC outlet. The keypad can be used outdoors but it is not waterproof in any manner and should not be left outside.

Whether you use an in-wall or table-top RF keypad, ADA suggests running your Suite 16 System at a baud rate of 19200 for optimum performance. For the most part, function from an RF control is identical to a hard-wired control. To the end user, there is no difference.

When installing the controls, in addition to the normal setting of the controls baud rate to match the system, you must also make certain that the RFT-3000 and RFT-MOD dip switch settings are set to the same baud rate. Finally, you will also need to make certain that the addresses match on the RFT-3000 and the RFT-MOD. Both the RF baud rate and address are set using the four switch DIP switch on the RFT-3000 and RFT-MOD. Please note, that you select one address setting per system, as these addresses have nothing to do with zones.

---

**RFT-3000 Dip Switch Settings**

(Must match RFT-MOD)

<table>
<thead>
<tr>
<th>SWITCH NO.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS 1</td>
<td>UP</td>
<td>UP</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>ADDRESS 2</td>
<td>DN</td>
<td>UP</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>ADDRESS 3</td>
<td>UP</td>
<td>DN</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>ADDRESS 4</td>
<td>DN</td>
<td>DN</td>
<td>DN</td>
<td></td>
</tr>
<tr>
<td>ADDRESS 5</td>
<td>UP</td>
<td>UP</td>
<td>DN</td>
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</tr>
<tr>
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</tr>
<tr>
<td>ADDRESS 7</td>
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<td>ADDRESS 8</td>
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</table>

**Keypad RFT-MOD Dip Switch Settings**

(Must match RFT-3000)

<table>
<thead>
<tr>
<th>SWITCH NO.</th>
<th>1</th>
<th>2</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS 1</td>
<td>UP</td>
<td>UP</td>
<td>UP</td>
</tr>
<tr>
<td>ADDRESS 2</td>
<td>UP</td>
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<tr>
<td>ADDRESS 3</td>
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</tr>
<tr>
<td>ADDRESS 6</td>
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<td>ADDRESS 7</td>
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</tr>
<tr>
<td>ADDRESS 8</td>
<td>DN</td>
<td>DN</td>
<td>DN</td>
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</tbody>
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**RJ-45 Cat. 5 Cable Connector**

[Diagram of RJ-45 Cat. 5 Cable Connector]
In the diagram below, you can see that it is possible to mix and match keypads that are both hardwired, hardwired for power but running on RF for control and feedback, or completely wireless using an AC transformer. Only one RFT-3000 is required per system.
MC-6000 Keypad with Video, WH-6000, & TV-6000

The MC-6000 Keypad fits a four-gang box and in addition to the MC-5000 Rapture Keypad, features a small LCD preview display. There are also five navigation buttons below the screen for up, down, right, left, and enter (select) control. The enter button is also found on the MC-5000 numeric button area. The IRL-5000 has the directional buttons available and much like any transport function, the keypad’s 12 character LED display can read these function names when pressed.

The MC-6000 runs on the same Cat. 5 cable that you would use for an MC-5011, MC-5000, or MC-3000 OD. Termination is also the same. However, the MC-6000 uses these eight wires slightly differently, since composite video is also passed along the single Cat. 5 cable. As such, in order for the MC-6000 to display video, you will need to use the WH-6000 Wiring Harness. The WH-6000 features eight RJ-45 jacks that correspond to the eight composite video input jacks. If an MC-6000 is connected to RJ-45 jack number three, then the composite video output for that display must connect to composite video input number three. Each composite video input on the WH-6000 also has a Hi-Z/75Ω Normal switch. If you are splitting this video signal to perhaps drive two MC-6000’s on the same zone, then you will need to set one of these switches to Hi-Z while the second WH-6000 composite video input is set to normal.

ADA also provides the TV-6000 which is a small black box that features an RJ-45 input and a composite video output. This permits you to drive a video signal to a TV by running Cat. 5 cable to the TV which will be fitted with the TV-6000. Again, if a composite video signal is “Y” split to input to two jacks on the WH-6000, and one RJ-45 connector is running to an MC-6000 while the other is running to a TV-6000 for connection to a TV set, then one Hi-Z/75Ω switch would be set to Hi-Z while the other is set to 75Ω (Normal). In the event you did not run an Cat.-5 Cable from the mainframe to the TV location but can run a jumper Cat. 5 cable from the keypad to the TV, you can opt to run video to the TV this way as well.

While the MC-5011, MC-5000, MC-3000 OD, and/or MC-3800 OD keypads can be used with the WH-2000 or WH-6000 Wire Harness, the MC-6000 can only be used with the WH-6000 Wire Harness. When using the MC-5011, MC-5000, MC-3000 OD, and/or MC-3800 OD keypads on a WH-6000, special settings must be made in order to permit the keypads to operate properly. See the instructions included with the WH-6000 regarding these settings.
CMB-1 Clock Module

The CMB-1 Clock Calendar Module is a master clock module which calibrates all system clocks (i.e. MC-5000 Keypads) on power up and from then on, every hour. While typically powered by the ADA Bus, the CMB-1 also features a battery backup to maintain time during power outages. The CMB-1 will permit the MC-6000, MC-5000, MC-3000 OD, and/or MC-3800 OD keypads to display the date and time when a room is off. In order for these keypads to display the time, a single CMB-1 needs to be connected to an open ADA Bus jack on any wire harness.

The CMB-1 features DIP switches which set the Baud Rate (baud rates are either 1200 or 19200 and must match the settings of the Suite 16 System, typically 19200), the time mode (12 hour or 24 hour used only during test and setup mode), Day Light Savings Time On or Off (US DST), and a test mode. As the CMB-1 features a calendar it is capable of changing the from Standard Time to Day Light Savings Time automatically. Only one CMB-1 is used per system.

If it is preferable for some rooms to have the keypad’s display turn off rather than continuously display room status or time, these keypads can be individually set to blank out (Blanking On/Off), permitting others to display status or date/time. Date/time are displayed only when the room is off or the entire system is off.

If the CMB-1 battery is dead and the system suffers a power loss, the keypads will display CHECK BATT/TIME after all controls have been updated. This display will continue every hour until the clock has been set.
MC-5011 Keypad Setup

The MC-5011 Keypad combines both elegance, function, and price into a single-gang Decora bezel.

The MC-5011 is only available with a Cat-Link connector. As such, the MC-5011 must be wired on standard Cat. 5 cable. The MC-5011 controls the Suite 16 System. You must use the WH-2000 Wiring Harness with the MC-5011 Keypad. There are eight standard pre-made source formats which are listed below.

Format 1  FM1,FM2,AM,CD1,CD2,DSS,DVD,AUX
Format 2  FM1,FM2,AM,CD1,CD2,CD3,DSS,DVD
Format 3  FM1,FM2,AM,CD1,CD2,DSS,DSS,AUX
Format 4  FM1,FM2,FM3,CD1,CD2,DSS,DVD,AUX
Format 5  FM1,FM2,FM3,CD1,CD2,DSS,DSS,DVD
Format 6  FM1,FM2,FM3,CD1,CD2,DSS,DSS,AUX
Format 7  FM1,FM2,CD1,CD2,DSS,DSS,DVD,AUX
Format 8  FM1,FM2,CD1,CD2,DSS,AUX,AUX

Custom formats are also available at an additional charge. Please note, that custom formats utilize a rubber button pad where the eight source buttons are black and the lettering is etched clear. All other keypad buttons are clear with black lettering ADA then etches away the desired source label using a process that involves a laser.

Up to three characters can be used to describe a source name. This process is functional but the letters are not as smooth as those of the eight more common formats listed above. Again, the letters in a custom rubber are clear and the area around them is black. This only applies to the eight source buttons. ADA suggests using one of the eight formats listed above.

The MC-5011 features a bank of twelve DIP Switches. Switches 1 and 2 determine system model. Switch 3 sets baud rate (1200,19200), Switch 4 sets light dimming, Switch 5, 6, and 7 set source control, and switches 8, 9, 10, 11, and 12 set room number. There are also two jumper “shunting pins” that determine if the MC-5011’s IR receiver is on or off. The second jumper turns the LED’s off when the system is off. With jumper is set to night mode, when the room is on, the keypad functions as normal: the selected source is red, while all other buttons are green. When the room is off but the system is still on elsewhere, all buttons are off with the exception of the OFF button, which will glow red, indicating the system is still on somewhere. When the system is off, all buttons are off. These charts will assist in properly setting up the MC-5011.
MC-5000 Keypad LED Setup

The MC-5000 Rapture Keypad is designed to permit you to select different light colors per button groups. The buttons are grouped together by function and each group has three DIP switches associated to that group. The three switches turn on red, green, and blue individually. These switches are found on the circuit board attached to the MC-5000 wall plate. There are two banks of 12 switches, 24 switches total, for eight button groups.

The eight groups are: Numerics, Transports, Sources Not Selected, Source Selected, Bass & Treble (Party 1 & 2 on Millennium), Extra, Volume, and Off.

Available Colors Include: Red, Green Blue, Purple (Red & Blue On), Orange (Green & Red On), Light Blue (Blue & Green On), White/Pink (Red, Green & Blue On), and No Color (All Off).

To set the colors, ADA suggests taking an ordinary paper clip and creating a small tool that will allow you to turn the switches on and off as you desire.

Open the paper clip so that one end is extended straight. Using a needle-nose set of pliers, bend the end of the tip so that the extended end has a little hook to it.

As some of the DIP switch groups are hard to access, in particular Source Used and Sources Not Used, this paper clip will be of use.
MC-5000 Keypad Manual Setup

The EXTRA button is used to both permit the user to access other keypad functions while permitting the installer to enter the keypad’s program mode.

To enter the program mode, press and hold the EXTRA button for 5 seconds. The display will read the keypad’s version number followed by the enter code display:

CODE: _ _ _ _

Enter the ADA code number using the eight source buttons where the source button on the far left refers to the number 1 and the source button on the far right refers to the number 8.

The following codes activate the associated menu functions.

<table>
<thead>
<tr>
<th>CODE</th>
<th>MENU FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1111</td>
<td>TEST KEYS</td>
<td>DEMONSTRATION KEYPAD MODE</td>
</tr>
<tr>
<td>1112</td>
<td>IR ON/OFF TOGGLE</td>
<td>TURNS KEYPAD IR RECEIVER ON &amp; OFF</td>
</tr>
<tr>
<td>1113</td>
<td>DISPLAY BLANK TOGGLE</td>
<td>WHEN THE SYSTEM IS OFF, THE KEYPAD DISPLAY BLANKS OUT AFTER A SHORT TIME.</td>
</tr>
<tr>
<td>1115</td>
<td>CLOCK SETUP</td>
<td>SET DATE AND TIME</td>
</tr>
<tr>
<td>1116</td>
<td>ROOM NUMBER</td>
<td>SETS ZONE KEYPAD ZONE NUMBER</td>
</tr>
<tr>
<td>1117</td>
<td>BAUD RATE 1200</td>
<td>SETS KEYPAD BAUD RATE TO 1200 BAUD</td>
</tr>
<tr>
<td>1118</td>
<td>BAUD RATE 19200</td>
<td>SETS KEYPAD BAUD RATE TO 19200 BAUD</td>
</tr>
<tr>
<td>1867</td>
<td>INSTALLER MODE</td>
<td>SETS KEYPAD INTO PROGRAM MODE</td>
</tr>
</tbody>
</table>

After entering the code the display will confirm the setup mode selected.

For Code 1111, the display will read TEST KEYS. As sources are selected, the selected source button will illuminate the active LED color while the rest of the keypad LEDs will light up. Upon press the source buttons, the following characters will be displayed on the twelve character display. Pressing the Room Off button will turn off the source LED’s. Pressing the Extra button will indicate EXTRA and then the keypad will exit the Test Keys mode and return to normal operation.

**IR Receiver On/Off Toggle**

For Code 1112, the display will read IR ON or IR OFF depending on the state of the IR. Re-entering this code will reverse the process.

**Keypad Display Time Out - Bedroom Mode**

For Code 1113, the display will read BLANKING ON or BLANKING OFF, depending on the state of the readout display. Display will black out after 5 seconds after receiving a feedback update.

**Room Address**

For Code 1116, the display will read the current room number:

SET ROOM # (where the # is the current room number)

To change the room number of the keypad, use the >> or <<. Room numbers will increment between 1 and 99. Press EXTRA to exit the setup mode and the display will momentarily read ROOM = # and then the display will return to normal operation.
1200 Baud Rate
For Code 1117, the display will read BAUD 1200. If the display maintains BAUD 1200, the keypad is not communicating with the Suite 16. As such, this may be the wrong baud rate setting.

19200 Baud Rate
For Code 1118, the display will read BAUD 19200. If the display maintains BAUD 19200, the keypad is not communicating with the Suite 16. As such, this may be the wrong baud rate setting.

Clock and Calendar (This function only works if the control is connected to a system that includes the CMB-1 Clock Calendar Module. The CMB-1 must be on the bus.)
For Code 1115, the display will read CLOCK SET. Use the < or > buttons to select which of the following parameters you wish to change.

SET HOURS-SET MINUTES-SET MONTH-SET DATE-SET DAY-SET 12-24 HR-SET YEAR

The SET 12-24 HR function refers to the clock displaying time in 12 hour mode or 24 hour mode. This setting is independent of that on the CMB-1 and is set locally. As such, some keypads can display time in 12 hour mode while others display time in 24 hour mode.

Regarding the setting of seconds, any adjustment to minutes resets the seconds to zero.

All changes are accepted immediately.

SET HOURS - When you navigate to the SET HOUR display using the < or > buttons, pressing the << or >> button only once, will cause the display to read the current state without changing any of the settings, as an example:

FEB14 23:33 or FEB14P11:33
("P" stands for p.m. when in 12 hour mode. No character is displayed for a.m.)

While the keypads can be set to display either 12 or 24 hour modes independently of the setting of the CMB-1, during time/date setup, the CMB-1’s 12/24 hour mode setting will dominate the display. Use the >> or << to alter the hour. If in 24 hour mode (set 12 or 24 Hour mode using DIP switches on the CMB-1), the time will increment through 24 hours. If in the 12 hour mode, the clock will display “P” for p.m.

SET MINUTES - After setting the hour, use the > button to advance the display to SET MINUTES and then press << or >> once. Again the display will read the current date and time, as an example, FEB14 23:33. At this time, pressing >> or << will advance or decline through minutes. When the desired time is displayed, use the > button to advance to:

SET MONTH - After setting the minutes, use the > button to advance the display to SET MONTH and then press << or >> once. Again the display will read the current date and time, as an example, FEB14 23:33. At this time, pressing >> or << will advance or decline through the twelve month. When the desired month is displayed, use the > button to advance to:
SET DATE - After setting the month, use the > button to advance the display to SET DATE and then press << or >> once. Again the display will read the current date and time, as an example, FEB14 23:33. At this time, pressing >> or << will advance or decline through the numeric date. When the desired date is displayed, use the > button to advance to:

SET DAY - After setting the date, use the > button to advance the display to SET DAY and then press << or >> once. The display will read the current day, as an example, THU. At this time, pressing >> or << will advance or decline through the seven days. When the desired day is displayed, use the > button to advance to:

SET 12-24 HR - After setting the day, use the > button to advance the display to SET 12-24 HR and then press << or >> once. The display will read 12 HOUR MODE or 24 HOUR MODE. At this time, pressing >> or << will switch between these two options. While all other features are loaded into the CMB-1, thus not requiring you to do this process for each and every keypad, the 12/24 display setting must be altered on a per keypad basis. This is the only Clock/Calendar associated setting that is not global. When the desired clock mode is displayed, use the > button to advance to:

SET YEAR - After setting the 12/24 hour mode, use the > button to advance the display to SET YEAR and then press << or >> once. The display will read the current year, as an example, 2002. At this time, pressing >> or << will advance or decline through the available years (2000-2099). For systems that are still operational in 3000, ADA will suggest upgrading the MC-5000 software. When the desired month is displayed, use the > button to advance back to SET HOURS or press the EXTRA button to exit this setup mode.

Exiting the Clock/Calendar Setup
If you wish to exit this setup mode at any given time, press the EXTRA button.

MC-5000 Installer Setup
Unlike the previous setup features, those found under Installer Setup are more involved to the systems underlying programming. It is here, that the feature set of the MC-5000 when used with the Suite 16 System is fully realized. Prior to entering the code the Version # will appear.

To enter the installer area, press and hold the extra button until the display reads:

CODE ___ ___ ___

Enter the code “1867” using the source buttons where the number one is the first source on the left while the number eight is the last source, that on the far right. When the code is entered correctly, the display will read:

INSTALLER

The first stage of this sequence is the connection of the keypad’s eight source buttons to the 16 inputs on the Suite 16. Pressing the >> or << buttons will advance through these options:

INPUT CONFIG - SOURCE CNTRL - SOURCE LABEL - CHECK SETUP - PROGRAM ALL
Input Configuration

While the display reads INPUT CONFIG pressing the > button will engage the input configuration mode. The display will read:

NORMAL INPUT

Here there are a total of five options, the most common of which the normal input configuration option is the most common:

NORMAL INPUT - PARTYGROUP 1 - PARTYGROUP 2 - PARTY GROUP 3 - PARTYGROUP 4

By pressing >> or <<, you will be able to advance through the above five options. Again, pressing < will return you to the previous level. When you have selected one of the above options, such as NORMAL INPUT, press the > button. The display will then read the first input option:

INPUT 0

Pressing >> or << buttons will scroll through all of the seventeen options under the headings found in the table below. To return to the previous level, press the < button.

<table>
<thead>
<tr>
<th>NORMAL INPUT</th>
<th>PARTYGROUP 1</th>
<th>PARTYGROUP 2</th>
<th>PARTYGROUP 3</th>
<th>PARTYGROUP 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT 0</td>
<td>PTYGRP1-IN 0</td>
<td>PTYGRP2-IN 0</td>
<td>PTYGRP3-IN 0</td>
<td>PTYGRP4-IN 0</td>
</tr>
<tr>
<td>INPUT 1</td>
<td>PTYGRP1-IN 1</td>
<td>PTYGRP2-IN 1</td>
<td>PTYGRP3-IN 1</td>
<td>PTYGRP4-IN 1</td>
</tr>
<tr>
<td>INPUT 2</td>
<td>PTYGRP1-IN 2</td>
<td>PTYGRP2-IN 2</td>
<td>PTYGRP3-IN 2</td>
<td>PTYGRP4-IN 2</td>
</tr>
<tr>
<td>INPUT 3</td>
<td>PTYGRP1-IN 3</td>
<td>PTYGRP2-IN 3</td>
<td>PTYGRP3-IN 3</td>
<td>PTYGRP4-IN 3</td>
</tr>
<tr>
<td>INPUT 4</td>
<td>PTYGRP1-IN 4</td>
<td>PTYGRP2-IN 4</td>
<td>PTYGRP3-IN 4</td>
<td>PTYGRP4-IN 4</td>
</tr>
<tr>
<td>INPUT 5</td>
<td>PTYGRP1-IN 5</td>
<td>PTYGRP2-IN 5</td>
<td>PTYGRP3-IN 5</td>
<td>PTYGRP4-IN 5</td>
</tr>
<tr>
<td>INPUT 6</td>
<td>PTYGRP1-IN 6</td>
<td>PTYGRP2-IN 6</td>
<td>PTYGRP3-IN 6</td>
<td>PTYGRP4-IN 6</td>
</tr>
<tr>
<td>INPUT 7</td>
<td>PTYGRP1-IN 7</td>
<td>PTYGRP2-IN 7</td>
<td>PTYGRP3-IN 7</td>
<td>PTYGRP4-IN 7</td>
</tr>
<tr>
<td>INPUT 8</td>
<td>PTYGRP1-IN 8</td>
<td>PTYGRP2-IN 8</td>
<td>PTYGRP3-IN 8</td>
<td>PTYGRP4-IN 8</td>
</tr>
<tr>
<td>INPUT 9</td>
<td>PTYGRP1-IN 9</td>
<td>PTYGRP2-IN 9</td>
<td>PTYGRP3-IN 9</td>
<td>PTYGRP4-IN 9</td>
</tr>
<tr>
<td>INPUT 10</td>
<td>PTYGRP1-IN10</td>
<td>PTYGRP2-IN10</td>
<td>PTYGRP3-IN10</td>
<td>PTYGRP4-IN10</td>
</tr>
<tr>
<td>INPUT 11</td>
<td>PTYGRP1-IN11</td>
<td>PTYGRP2-IN11</td>
<td>PTYGRP3-IN11</td>
<td>PTYGRP4-IN11</td>
</tr>
<tr>
<td>INPUT 12</td>
<td>PTYGRP1-IN12</td>
<td>PTYGRP2-IN12</td>
<td>PTYGRP3-IN12</td>
<td>PTYGRP4-IN12</td>
</tr>
<tr>
<td>INPUT 13</td>
<td>PTYGRP1-IN13</td>
<td>PTYGRP2-IN13</td>
<td>PTYGRP3-IN13</td>
<td>PTYGRP4-IN13</td>
</tr>
<tr>
<td>INPUT 14</td>
<td>PTYGRP1-IN14</td>
<td>PTYGRP2-IN14</td>
<td>PTYGRP3-IN14</td>
<td>PTYGRP4-IN14</td>
</tr>
<tr>
<td>INPUT 15</td>
<td>PTYGRP1-IN15</td>
<td>PTYGRP2-IN15</td>
<td>PTYGRP3-IN15</td>
<td>PTYGRP4-IN15</td>
</tr>
<tr>
<td>INPUT 16</td>
<td>PTYGRP1-IN16</td>
<td>PTYGRP2-IN16</td>
<td>PTYGRP3-IN16</td>
<td>PTYGRP4-IN16</td>
</tr>
</tbody>
</table>

Input 0 or any of the party group inputs that read 0 refer to no source selection at all. These options are useful to prevent a source button from selecting anything on that button (i.e. a source button that does nothing).

To lock a keypad’s source button into one of the above inputs, press the source button while the keypad displays the corresponding input setting. The keypad will echo INPUT OK while the source button pressed will illuminate, indicating that the setting has been locked in. If you have a 0 input setting displayed and you then press a source button, the display will indicate NO INPUT OK. Continue setting all eight source buttons. To return to a previous level, press the < button. To return to the main Installer area, press the < button again.
**Party Group Source Selection**
The Party Group source selection feature permits multiple rooms to engage to the selected source when a single keypad accesses that source. This feature is used to setup “party” type sources in several rooms when entertaining. In this application, not all sources on a keypad need be set to party. In fact, the keypads in the zones set to party, might not have a single party function on them. Perhaps only one keypad, (i.e. kitchen), might have a single button (i.e. CD1) that will cause the living room, dining room, and entry foyer to engage to CD with the kitchen. Here the kitchen CD1 button will need to access a Party Input which would be programmed on that keypad’s button as illustrated on the previous page. The three other rooms would need to be programmed to track that specific party group using ADA’s Suite 16 setup software (PC based software).

The Party Group source selection function is also used to make certain that several zones turn on together and continuously track the same source. For example, if a living room, dining room, and entry foyer require independent volume, bass and treble settings, they need to be each their own zone. However, if these three areas are open to each other, there may be a desire to prevent different sources from ever playing simultaneously in these zones/rooms. As such, these rooms can be set to turn on together but never play a different source. To do so, one of the Suite 16’s four Party Groups will need to be dedicated to this group of zones/rooms. Each of the rooms keypads will need to be programmed so that the source buttons on these keypads engage sources specific to that party group. Finally, in software, using the ADA Suite 16 PC Software, all these zones/rooms will need to be set to the corresponding party group.

**Exiting Input Configuration**
To exit the Input Configuration mode from the deepest level, press the < button to return from the INPUT # to the NORMAL INPUT level. Press the < again to return to INPUT CONFIG and following options:

NORMAL INPUT - PARTYGROUP 1 - PARTYGROUP 2 - PARTY GROUP 3 - PARTYGROUP 4

**Source Control**
To advance to the SOURCE CNTRL option press the << or >> button until the display reads:

SOURCE CNTRL

Then press the > button. The display will read IR LEARNER. To advance to one of the following, press the >> or << buttons. To return to the previous level, press the < button.

IR LEARNER - ADA TUNER - SPECIAL CD - LVI - NO FUNCTION

The above five options refer to the various source control options that are built into the MC-6000 keypad. By moving the >> or << so that the display reads IR LEARNER, you are ready to lock in sources to an IR LEARNER port. Press > to select the IR LEARNER while it is displayed.

The NO FUNCTION permits you to have a source button perform no transport functions at all. To do this, while NO FUNCTION is displayed, press the source button. The display will confirm NONE OK.
**IRL-5000**

Once you press the > button while IR LEARNER is displayed, the display will change to read:

**IRL ADDRESS1**

Using the >> and << buttons, you can advance through the following options. Use the < button to return to the previous level.

While the display reads IRL ADDRESS1, pressing the > button will take you to the next level where the display will read:

**IRL 1  OUT 1**

To lock this IRL-5000 output port number to a specific source, press the source button. The display will confirm IRL OK and return to the above setting. To advance to other IRL-5000 port outputs on an IRL-5000 with the like address, use the >> or << buttons. The options listed below will be scrolled through.

IRL1 OUT1 - IRL1 OUT2 - IRL1 OUT3 - IRL1 OUT4 - IRL1 OUT5 - IRL1 OUT6 - IRL1 OUT7 - IRL1 OUT8

Again, once a desired output port is displayed, press the corresponding source button. The display will indicate IRL OK to verify the selection. As always, use the < button to return to the previous level. If the wish to exit the IRL-5000 from this level, you will need to hit the < button twice. The first time will return you to the IRL ADDRESS1 stage and the second time to the IR learner stage where the display will again read IR LEARNER.

**ADA Tuner**

To advance to the ADA Tuner, use the >> or << buttons. When the display reads:

**ADA TUNER**

Press the > button to enter this option. The display will read:

**TUNER ADRS 1**

Using the >> or << buttons, you can scroll to the address of the Tuner (this is not the module output number). Typically, Address 1 is the default address used and should not be changed. Unless you changed the address, when the display reads TUNER ADRS1, press the > button. The display will then read:

**TUNER1-OUT1**

To return to the previous level, press <. To advance to other Tuner Module Outputs, use the >> or << buttons.

TUNER1-OUT1  TUNER1-OUT2  TUNER1-OUT3

To engage a particular Tuner Module Output, press the corresponding source button. The keypad will respond TUNER OK, indicating that the source button will now track this output.
**Exiting Trinity Tuner Setup**

To exit the Trinity Tuner from the lowest level, you will need to press the < button twice. The first time will return you to the address level, the second time will return you to ADA TUNER with the following options available.

IR LEARNER - ADA TUNER - SPECIAL CD - LVI - NO FUNCTION

Using the >> or << buttons, you can proceed to Special CD or LVI. By pressing the < button you can return to the primary menu level which includes the following:

INPUT CONFIG - SOURCE CNTRL - SOURCE LABEL - CHECK SETUP - PROGRAM ALL

**Special CD**

To engage a special CD setting, you must first be certain that you have a component that specifically operates on ADA Special CD commands. ADA’s Aquarius Hard Drive, Escients Tunebase Pro Mk II and III, or Media Access Solutions Hard Drive players are embedded with the Special CD command sets.

To navigate to this setting, make certain you are in the SOURCE CNTRL level and using the >> or << buttons, advance until the display reads:

SPECIAL CD

Then press >. The display will read:

SPECIAL CD 1

were as many as eight options exist including the following:

SPECIAL CD 1  SPECIAL CD 2  SPECIAL CD 3  SPECIAL CD 4  SPECIAL CD 5  SPECIAL CD 6  SPECIAL CD 7  SPECIAL CD 8

To lock a source button to track one of the special cd options, press the source button while the display shows the corresponding Special CD address number. The display will confirm CD OK. To advance to an alternate address setting, press the >> or << button. To return to the previous level, press the < button.

**LVI-3800**

The LVI-3800 is a low voltage relay control device that provides up to seven contact closures corresponding to a keypads: >, <, >>, <<, stop, pause, and main buttons. It is useful for controlling devices that lack either an IR or RS-232 control interface. To lock a source button to control the LVI-3800, make certain that you are in the SOURCE CNTRL. Use the >> or << buttons to navigate until the display reads:

LVI

Press > to enter the LVI menu and the display will read LVI 1 with eight possible options. Use the >> or << buttons to advance between these options LVI 1 through LVI 8. When the desired LVI address is displayed, press the source button and the keypad will confirm LVI OK. To exit this level, press the < button.

**No Function**

When NO FUNCTION is displayed, pressing a source button will cause that source’s transport buttons to have absolutely no source control. The display will confirm NONE OK.
Source Labels

Source Labels are the names of the sources that are connected to the Suite 16. While the keypad buttons have only a few buttons to designate a source name, the keypad’s display can read up to eleven characters. This permits you to better define that component. Whether you are using eight or less sources, more than eight, or the full sixteen sources on a Suite 16 System, the keypads need to be programmed with all sixteen input names. By default, inputs 9-16 are pre-labeled in the keypads as INPUT 9 through INPUT 16.

INPUT CONFIG - SOURCE CNTRL - SOURCE LABEL - CHECK SETUP - PROGRAM ALL

To do so, while in the setup mode above, use the >> or << buttons until the display reads:

SOURCE LABEL

Then press the > button. The display will offer two options:

STNDRD LABEL or CUSTOM LABEL

Where the display will read

STNDRD LABEL

Then press >. The display will read

FORMAT 1

Using the >> or << buttons will advance through the following alternatives.

<table>
<thead>
<tr>
<th>FORMAT 1</th>
<th>FORMAT 2</th>
<th>FORMAT 3</th>
<th>FORMAT 4</th>
<th>FORMAT 5</th>
<th>FORMAT 6</th>
<th>FORMAT 7</th>
<th>FORMAT 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input 1</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>AM TUNER</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>DSS</td>
<td>DVD PLAYER</td>
</tr>
<tr>
<td>Input 2</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>AM TUNER</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>CD PLAYER 3</td>
<td>DSS</td>
</tr>
<tr>
<td>Input 3</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>AM TUNER</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>CD PLAYER 2</td>
<td>DSS 1</td>
</tr>
<tr>
<td>Input 4</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>FM TUNER 3</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>CD PLAYER 2</td>
<td>DSS</td>
</tr>
<tr>
<td>Input 5</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>FM TUNER 3</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>CD PLAYER 3</td>
<td>DSS</td>
</tr>
<tr>
<td>Input 6</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>FM TUNER 3</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>DSS 1</td>
<td>DSS 2</td>
</tr>
<tr>
<td>Input 7</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>DSS 1</td>
<td>DSS 2</td>
<td>DVD PLAYER</td>
</tr>
<tr>
<td>Input 8</td>
<td>FM TUNER 1</td>
<td>FM TUNER 2</td>
<td>CD PLAYER 1</td>
<td>CD PLAYER 2</td>
<td>DSS 1</td>
<td>DSS 2</td>
<td>AUXILIARY</td>
</tr>
</tbody>
</table>

The table below shows the labels associated with the options selectable above.

To select an option use the >> or << buttons to navigate to the Option Number and then press the > button. That label set will be applied to the first eight sources. The display will read LABEL OK.

To exit the standard format option level, press the < button. The display will return to STNDRD LABEL with the following options.

STNDRD LABEL  CUSTOM LABEL
To completely exit the Source Label area, press the < button. To customize source labels for either the first eight or all sixteen source labels, use the >> or << buttons until the display reads:

CUSTOM LABEL

Then press the > button. The display will read the first of sixteen inputs.

INPUT 1

Using the >> or << buttons, you can navigate through all 16 source inputs. When the display is on an input whose label you wish to alter, press the > button. The first character will blink on the selected label.

You have two options here, a character by character changing of the label and/or a selection from a pre-made source label list. Use the VOL UP or VOL DN buttons to access the 41 pre-made options. Use the STOP and PAUSE buttons to change the blinking character. When done, use the >> or << buttons to advance the cursor to the next or previous character. Repeat this until the display reads the name as you wish it to appear. Press > to lock in changes and the display will confirm LABEL OK.

To change other input source labels, use the < button to return to the previous input label level. Here, you can use the >> or << buttons to navigate to a different input. Again, press > to edit this label. To completely exit the source label menu, press the < button until the display reads CUSTOM LABEL. Then press the < button once more to return to the main setup menu with the options shown below.

INPUT CONFIG - SOURCE CNTRL - SOURCE LABEL - CHECK SETUP - PROGRAM ALL

**Check Setup**

When CHECK SETUP is displayed, press the > to verify keypad source buttons to input numbers, source labels, and source control settings for that input. Select the source and the display will cycle between these three settings. To step back to the previous level, press the < button.

**Program All**

Program All takes the information, including keypad source buttons to input assignments, source control assignments, and source labels and uploads them to all other keypads currently on the ADA Bus. If you have some keypads currently on the ADA Bus that are custom programmed, you will want to disconnect them because the Program All function will load them with the programming that is internal to the keypad that is initiating the Program All. To program other keypads, use the >> or << buttons to navigate through the following

INPUT CONFIG - SOURCE CNTRL - SOURCE LABEL - CHECK SETUP - PROGRAM ALL

until the display reads: PROGRAM ALL

Then press the > button. UPLOAD READY To abort, press the < button.

To begin the upload, press the > button. The keypad that is uploading will display UPLOADING. The keypads being programmed will read PROGRAMMING. When the programming is complete, the keypad will exit the Installer Mode and the displays will read UPLOAD DONE and PROGRAM DONE respectively.
RS-232 Connections for PC's & Control Systems
The AVP-16 chassis features two RS-232 ports, one on the front of the chassis and a second one on the rear panel. These two RS-232 ports are in parallel. As such only one port can be used at any one time. If you have a PC or external control system connected to the rear panel RS-232 port, the front panel port will not be functional. The same is true if you have the front port active, then the rear panel port will not be active.

Ideally, you want to leave either the front panel (or perhaps the rear panel) port available for connection of a PC. This will permit you to connect your lap top PC to the Suite-16 System so that you can use the two following PC based programs, the Keypad Uploader and Suite 16 Tester.

The Keypad Uploader program permits you to program MC-5000, MC-6000, MC-3000, MC-3800, MC-3000 OD and MC-3800 OD keypads without having to enter the keypads program steps. The Suite-16 Tester program is most useful for system set up. In most cases, you will need to use a PC to fully access all the feature sets of Suite 16. As such, this program and its ability to connect to the AVP-16 is essential.

Communication Settings
While the baud rate on the Suite 16 is adjustable between 1200 and 19200 baud, the typical setting used is 19200 baud. Other settings are 8 Data Bits, 1 Stop Bit, & No Parity.

ISO-232 & External Control Systems
If you are also controlling the Suite 16 System from an external control system (i.e. AMX or Crestron), ADA strongly suggests adding an ISO-232 to the system. In addition to leaving either the front or rear panel RS-232 jack open for your PC, the ISO-232 provides electrical isolation that is not internal to the AVP-16’s RS-232 ports. This isolation will be useful in helping to eliminate ground loops. The ISO-232 can connect directly to any open ADA Bus port on the system wire harness or if no other ADA Bus components are used in the system, including any ADA keypads, directly into the ADA Bus jack on the AVP-16.

RS-232 Cable
The connection of PC or Control System to an ADA RS-232 port requires a simple straight through 9-pin “D” style RS-232 cable. You should not use a null-modem or cross-over cable. If you use an alternate type of cable, you will most likely not get communication, in the form of feedback or control to occur.
Ada’s MC-5KS Uploader program is designed to speed you through the process of programming keypad button input links, source control links, and source labels. Furthermore, you can retain a saved version of the project as a “.5KS” file type, permitting you to open the setup parameter file at future times.

To connect the PC to the system, you can use the front panel RS-232 jack on the AVP-16 providing that the rear panel RS-232 is not used. You can also connect using an ISO-232. Use a straight-through 9-pin RS-232 cable.

After installing the Keypad Uploader program on your PC, open the program and proceed with these first steps.

Under Configuration, select your Com port and baud rate. Unless you have specified or have purposely selected the 1200 baud rate setting for the Suite-16, the factory setting for the system is 19200. As such, in the setup software, you will need to select 19200 as well.
Begin by labeling your inputs. Select an input label, by default labeled 1 through 16, which will then be outlined in blue. You can label each source with only 11 characters.
Now select the Source button representative of the eight source buttons on ADA keypads and assign a Suite 16 Input to it.

Determine if the keypad button is a normal input or if it will activate a Suite 16 Party Group.

Finally, assign the source control option, in this example Trinity Tuner, Module 1.
For sources that are controlled by the IRL-5000, you can assign both an address and port.

For the Special CD option, to control and get feedback from the Aquarius Hard Drive Server, select the source button and assign a Special CD Address.

For sources that are controlled by the LVI-388 Low Voltage Relay device, assign as below.
Once you have the customer’s MC-5000 configuration established, you can opt to save it as a “.5KS” file type. As such you can reload these settings at a later time.

Under File, select Save As and enter a customer name with the “5KS” suffix and press save.

To upload the settings to the MC-5000 keypads, simply press the UPLOAD ALL button. The software will indicate the status of the upload as well as prompting you when it is completed.
Suite 16 Testing & Program

ADA has developed a fully functional PC program for the Suite-16 System, the Suite-16 Testing & Programming Software. Using this application, you can control a complete Suite-16 System. This program is also ideal for setting up a Suite-16 System, permitting you to make use of all the system features. As many of these features are set and permanently stored in the Suite-16, setup is typically a onetime procedure.

Use a straight-through 9-pin RS-232 cable when connecting to your PC or an external control system.

In order to use the PC software, you need to have your PC connected to the Suite-16. There are several options available to you. The AVP-16 features both a front panel and rear panel RS-232 9-pin D connector. These two connectors are in parallel. As such, if another control system or PC is connected to the rear panel jack, you cannot use the front panel. The same is true if something were connected to the front panel and you desired to connect your PC to the rear panel. Only one of these two connectors can be used at any one time. As described on the previous page, if you are using an external control system and wish to, from time to time, connect a PC to the front panel jack (for service and setup), you may select to include an ADA ISO-232 ADA Bus to RS-232 Converter to the system. The ISO-232 can be used for the external control system while the front (or rear panel) RS-232 port on the AVP-16 can be used for connection to your PC. If you do not have an ISO-232 and are using an external control system, disconnect the control system prior to connecting your PC.

ADA strongly suggests using an ISO-232 for external control systems because it provides additional electrical isolation and assists in preventing ground loops.

Configuration Page

The first page will access is the Configuration page. Here you will need to select your Com port. The Global Version Request button will request the version numbers of the P-16 and V-16 modules. As these cards' programs are loaded at ADA, knowing the program release numbers will be useful if service issues arise. This page also permits you to test audio and video inputs using the Input/Output Test area at the bottom of this page.
**Room Control Page**
Under the Room Control tab, you can set and control all of the audio parameters specific to that room.

Begin by selecting a room number using the pull-down room window. To update the PC’s display with this room’s status, you will need to press the little square (orange/red) located in the lower left-hand corner of this window. The numeric fields for volume, maximum volume, paging volume, treble and bass will populate. Also, the existing room state will indent regarding all off, room off, or current audio input as well as turn-on option, stereo-L/R mode, tone filters on/off, party groupings and page groupings.

The image below details the entire Room Control page. Details for this page are discussed in the following pages.
Input Selection
There are several ways to select a source. You can simply use the input up or input down buttons. You can also directly access inputs numerically. If a room is off or if the system in all off, those buttons will be depressed. When an input is selected, the room turns on.

Bass & Treble Control
Bass and Treble are controlled in two ways, there is the standard up and down commands which will raise and lower bass and treble levels over a range from -12 to +12 with 0 being tone control flat. Tones levels are stepped numerically in two’s, from 0 to 2 to 4 etc. You can also do a bass or treble direct command which enters a value using the slider control. Much like a touch screen with sliders, the numeric tone level is jumped to as the slider is released.

Loudness & Stereo Enhancement Filters
There are two additional filters associated with tones. The loudness filter engages additional bass. The stereo enhancement filter opens the stereo imaging of the sound stage.

Tone Presets
There are four tone presets. To store a preset for a specific bass and treble level, set the tone controls to that level and then press either one of the four tone preset store buttons. To recall a tone preset, press the corresponding recall button. Please note, that the status of the filters will also store with the tone presets. If the loudness filter was on and the stereo enhancement filter was off when preset number 2 was stored, they will return to these settings when preset number 2 is recalled. Tone preset number 1 is recalled when the zone turns on providing the zone is set to turn on to recall 1.

Balance Control
Balance is a feature of a speaker channels volume level and the range swings from Left 40 to Right 40, with the balance set to Equal when centered between right and left channels. There are two balance presets. To store a balance preset, set the balance control to the desired level and then press one of the two store buttons. To recall the balance level, press the appropriate recall button. Balance preset number one is recalled when the zone turns on providing the zone is set to turn on to recall 1.
Volume Control
Volume is controlled in two ways, there is the volume up and down commands which will raise and lower volume levels over a range with 40 values (0-40). You can also do a volume direct command which enters a value using the slider control. Much like a touch screen with sliders, the numeric volume level, between 0 and 40, is jumped to as the slider is released.

Maximum Volume Level
The maximum volume level is set to prevent the room’s volume from ever extending beyond the maximum volume level. To set this level, simply position the slider at the desired position.

Mute Commands
Again, there are two options for mute. The mute on command engages mute, while the unmute command returns sound. Repeated pressing of the toggle button will switch between mute and unmute.

Volume Presets
There are four volume presets. To store a preset for a specific volume level, set the volume to that level and then press either one of the four volume preset store buttons. To recall a volume preset, press the corresponding recall button. Volume preset number 1 is recalled when the zone turns on providing that the zone is set to turn on with recall 1.

Zone Turn On Settings
When a zone turns on, it can be programmed to either turn on to its last used state or to a preset level. To select the zone to turn on to a preset level, press the turn-on w/recall 1 button. At this time, all preset number 1 settings will be recalled when the zone turns on, including volume, balance, bass, treble and loudness and stereo enhancement filter settings.

Channel Mixing Selector
While you most likely will never have the need to engage a setting other than stereo, you do have option here to select a particular channel to play through both right and left preamplifier outputs. By selecting mono left, both right and left channels will only play the source signal’s left input. By pressing mono right, both right and left channels will only play the source signal’s right channel information. Again, this feature can best be described as useful when listening to program material with a specific language on one channel and another language on the left channel. As this is a feature set that is not tied to any preset, it will be important to return to the stereo setting if either mono setting has been previously selected.
Party Grouping

Party Grouping delivers to the Suite 16 System two functional features. There are a total of four party groups. Much like a room has command sets for selection of input 1, input 2,...,input 16, each party group also has an input selection command set for input 1, input 2,...,input 16. Just like room 5 has an input selection command for source 8, party group 1 has an input selection command set for source 8.

With this in mind, we can proceed to understand how to use the party group functions. As previously mentioned, party grouping has two useful features. The first is the ability for several zones to turn on to a single source with one command. This is useful for entertaining, hence the name “party groups”. By assigning several rooms to a party group number, when an input selection is sent for this party group, all rooms on this party group engage to that source. If rooms are set to turn on to their acoustical preset, then all rooms associated with this party group, will turn on to the installers preset levels.

The second feature of party grouping can be used for multiple rooms that are architecturally open to each other. Here, the system can be set up such that when one room turns on to a source, the other rooms open to each other also turn on to that source. As sources are switched, these rooms will always track the same source. Because these rooms exist as independent zones on the Suite 16, they can still have their own acoustical levels and can turn off independently, but they will always share the same source.

The MC-5000 keypad has a feature set that permit the source buttons, instead of sending out input commands for a specific room, to send out input commands for a specific party group. If for example, three rooms: the entry foyer, living room, and dining room, all have a MC-5000 set to party group 2, when FM 2 is selected in the foyer, the other two rooms will also turn on to FM 2. If later, you change the living room to CD 1, the other areas will also switch to CD 1.

To set a room to track a particular party group, simply press the appropriate set button while on that room. To remove a room from that party group, press the clear button.

Page Grouping

Page grouping is set and cleared on a per room basis much like party grouping. Paging groups 1-6 are the serially controlled. Paging group 7 is triggered via audio sensing. Paging group 8 is triggered via low voltage.

Paging Volume Level

The volume level for pages is independent of the rooms volume level and is set by the slider control. When a page is initiated, the room ramps to that volume level, the tone controls are set to flat, and the filters are turned off. When the page is released, the room returns to the previous levels and input. If the room was off, it will return to the off state.
Global Room Control Page
The global room control tab features both party group and paging triggers as well as the input level trim controls. The red button in the lower right hand corner is the update information request button.

Input Level Trim Adjustment
The trim level adjustment can lower the input of level of a source component. As such, the sources that play louder than the least loud source, can be balanced off to be as loud as the least loud source. As such, the least loud source becomes the reference input, where all other sources are lowered so that they are in balance to the least loud source. As such, when you change inputs, the volume levels between sources remains the same.

Party Group Testing
To test and/or activate a party group to a specific input, select the desired input from the pull down input window. Then press the desired party group button.
Paging Control
The paging control tab permits you to simulate paging triggers.

The first six triggers are only controlled serially. As such, a control code needs to be issued in order to activate triggers 1 through 6.

Paging group 7 is the audio sensing trigger. The sensitivity of this trigger is set on the front of the A-16 module by removing the plexiglass panel. Because a page will always cause the audio to be sensed, if you desire to defeat this trigger entirely (perhaps because you are only using serial triggers), this page has an option which permits you to disable paging group 7 entirely.

Paging group 8 is the low voltage trigger paging group, again hardwired directly to the back of the A-16 module.

When engaging any of the paging groups, you can opt to remove a room from being paged by selecting the page all except the desired room number pull down window.

You can also activate paging to a single room on this page. For direct paging, select the room number and then press the page button.

It is important to remember that when a page is activated, you must turn paging off before rooms return to their previous state. Once a page is initiated, it will remain on until it is turned off. In the case of triggers 7 & 8, the paging turns off when the trigger is removed. In the case of paging group triggers 1-6 or room to room paging, you must turn all paging off.

If paging is on, there are two ways to turn paging off. If a room is being paged, selecting an alternate source input will turn the paging off for just that room. To reset paging for the entire system other than by issuing a serial control to do so, you will need to reset the system by turning the master power switch off on the front of the Suite 16.
**Video Control Page**

The video control tab permits control video direct selection, activation of the four video triggers, and also features the settings for video-follow-audio switching. To update this page, press the red button located in the lower left hand corner.

For direct video switching, select the room number from the pull down window and then press the desired video input. Even if the output is set to follow an active audio input, this switching will engage the newly selected input. You can also turn an active video input off to that room by press the off button.

There are four video triggers which can either be engaged serially, as on this page, or via low voltage. Setting these triggers will be discussed later on, but they are activated on this page.

The other options on this page involve setting video inputs to track audio selections. If an audio input has a video follower, you can set that input to track that audio selection. This function is also room specific, such that video follow audio tracking can be different in various rooms. The reason for this is simple. If a room has no video display of any type connected to the Suite 16, its room output can be used to drive another video device that is not room specific. For example, if room 3 physically has no TV, and room 4 has both a TV and a video capable touch screen, then the room 3 output can be used to drive video to the touch screen, while the room 4 output can be set to video-follow-audio. When using an open room output to drive a video display that is not intended to track any room’s audio selections, all video inputs to follow rooms must be in the clear (or off) state. This will permit that room (output) to directly access video without interruption from other room audio activities. To cause a video input to follow its numeric audio counterpart, press the appropriate set buttons. To remove this feature, press the clear button. Remember to activate video-follow-audio tracking for each room. This is a room by room specific function, not a global function.
Video Trigger Setup Page
The video trigger setup tab incorporates the feature sets that determine what events occur when one of the four video triggers is activated. Here, the surveillance feature set of Suite 16 becomes obvious. To update this page, press the red box in the lower left hand corner of the window.

There are a total of four triggers which can be activated via serial command sets (as on the previous page) or low voltage triggers (connected directly to the V-16 module). You can choose to disable any of these four triggers in this page. This will be useful if the system is already wired for triggers, but you later wish to prevent a trigger from occurring. Instead of pulling out the rack to rewire the system, simply disable that trigger completely by turning it off.

To begin we will determine which rooms (or video outputs) are affected by a video trigger. We specify outputs because some of the most useful effects of this feature set revolve around the ability to use open outputs to drive video capable touch-screens or closed-circuit TV monitors. Naturally, this feature also will override video playing on TV, much like the paging feature overrides audio playing in a room.

To set a room to follow a trigger or several triggers, pull down the room number from the assign trigger for room output section. To set a room (video output) to activate when a specific trigger is turned on, press the numeric set number for that trigger. To clear a trigger, press the clear button.

Now that we know which rooms (video outputs) track which triggers, we can determine what occurs when a trigger is activated. To start we will discuss the issue of video input trigger assignments. In this area of the page, select one of the four triggers using the pull down window. Next, determine which of the 16 video inputs are assigned to that trigger. For example, if video inputs 15 and 16 are open on the V-16, they could have closed circuit TV cameras connected to them. If in this example, inputs 15 and 16 are the two cameras cover-
ing the front door, and you want to assign these cameras to trigger number 1, select trigger number 1 from the pull down window and then set input 15 and 16 by pressing the appropriate set buttons. To clear these inputs from these triggers, press the clear buttons.

To determine what triggers do when they are activated, Suite 16 features a cycle count and dwell time setting. These two settings are global in that they will affect all four triggers. If you change the cycle count or dwell time for one trigger, you will alter the features for the other triggers. As such, you will want to give some thought into how you set cycle count and dwell time when using more than one trigger.

Dwell time refers to the length the input is held and is adjustable from a 1 second to 60 second time frame. Cycle count refers to the number of cycles that are repeated before the trigger is released. Cycle count goes from one cycle to 99 cycles. As such, the shortest time interval can be 1 second (dwell time = 1 second & cycle count = 1) all the way up to 99 minutes (dwell time = 60 seconds & cycle count = 99). In the example previously used, with two cameras covering the front door, when the front doorbell is pressed, trigger 1 engages. If the dwell time is set to 3 seconds and the cycle count is set to 4, then the first camera is displayed for three seconds, then the second camera for three seconds. This sequence will repeat three more times and then the trigger will turn off (24 seconds total time - 3x4 + 3x4).

If trigger number two has just one camera by the front gate which is activated with an electronic eye, then when trigger number two is engaged, the gate camera will be held for a period of 12 seconds (3 second dwell time x 4 cycles). Even though the Suite 16 is cycling, the image for a single input on a trigger is held steady without flutter.

To set the cycle count and dwell time, use the sliders bearing in mind that these features are global and will affect all four triggers.
Suite 16 Serial Protocol  V1.4 Explanation

PURPOSE:
This document explains the serial data code structure and operation of the Suite 16 Multi-Room Preamplifier. This document is preliminary and is for Suite 16 Audio card with version 1.4 software. All content subject to change.

DISCUSSION:
The Suite 16 Multi-Room Preamplifier is serial controlled at 19200 baud or 1200 baud. The 10 character command structure is as follows:

START CHARACTER  ACTION  FUNCTION  ROOM#/GLOBAL  <CR>

Example  '  S or G  AD01  R01  <CR>

The above example demonstrates how you would set room 1 to analog input 1. The start character must always be a ‘ called an accent grave, located on the key next to the 1 key on a standard QWERTY keyboard. All letters used in a 10 character string must be upper case. The end of the string must always end in a carriage return or “ENTER” key. The second character is “S” for set when performing a function. When updates about system status are requested this character will be a “G” for get. The third through sixth characters are the function code. Referring to the excel sheet you can look up the various functions that the preamplifier can perform. In some cases, like the volume direct command, some of the characters are a value entered into the system. The seventh through ninth characters are for telling the system that the command is for a specific room or a global function. Like the function code, some of the characters can be a variable for certain functions.

After there is a power failure and power is restored, the system will return to the last active settings for every room including whether the room was on or off, tone controls, volume, input trim, balance and input selected. The exception being if any page mode had been activated by serial command it will be cancelled. If a page mode is being activated manually or by auto audio level detection then the page will be active on power up.

The feedback response is an 11 character string

START CHAR  Acknowledge  PLACE HOLDER  FUNCTION  ROOM or GLOBAL  <CR>

Example  '  A  X  AD01  R01  <CR>

The “A” is for acknowledge and is in every feedback response

The “X” is a placeholder but is used only for feedback in the volume, tone and balance presets
DESCRIPTION OF COMMANDS:

ALL OFF
Powers down all rooms, amplifiers and source equipment; a global shutdown

EXAMPLE  'SALOFG00<cr> shut system down
Feedback  'AXALOFG00<cr>
Feedback Request  'GALOFG00<cr>
Feedback  'AXALOFG00<cr> or 'ASYSONG00

INPUT UP
Each input up command will advance to the next numbered audio input for a given room. When the input is 16 and the input up command is requested the system will roll over to input 1 and continue to advance to the next highest input. If the room was powered down it will turn on with the previous input before it was powered down.

EXAMPLE  'SINUPR01<cr> step input up by one
Feedback  'AXAD02R01<CR> feedback reflects current input for selected room
Feedback Request  'GINUPR01<cr>
Feedback  'AXRMOFR01<cr> room 1 is off
Or  'AXAD##R01<cr> current input selected for room 1
Or  'AXALOFG00<cr> system is off

INPUT DOWN
Each input down command will decrement to the next numbered audio input for a given room. When the input is 1 and the input down command is requested the system will roll over to input 16 and continue to decrement to the next lowest input. If the room was powered down it will turn on with the previous input before it was powered down.

EXAMPLE  'SINDNR01<cr>
Feedback  'AXAD02R01<CR> feedback reflects current input for selected room
Feedback Request  'GINDNR01<cr>
Feedback  'AXRMOFR01<cr> room 1 is off
Or  'AXAD##R01<cr> current input selected for room 1
Or  'AXALOFG00<cr> system is off
INPUT 1-INPUT 16
Directly selects one of the 16 discreet audio inputs for a given room. If the room was off the room will now be turned on and its associated amplifier and source equipment will be activated.

EXAMPLE 'SAD01R01<cr> select audio input 1 for room 1
Feedback 'AXAD01R01<cr>
Feedback Request 'GAD##R01<cr>
Feedback 'AXRMOFR01<cr> room 1 is off
Or 'AXAD##R01<cr> current input selected for room 1
Or 'AXALOFG00<cr> system is off

MUTE TOGGLE
Each mute toggle command will toggle that room between mute and unmute. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'SMTOGR01<cr> toggle mute in room 1
Feedback Request 'GMTOGR01<cr>
Feedback 'AXMTONR01<cr> room 1 mute is on
Or 'AXMTOFR01<cr> room 1 mute is off

MUTE ON
Mutes the audio signal for the selected room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'SMTONR01<cr> mute room 1
Feedback 'AXMTONR01<cr> room 1 mute is on
Feedback request 'GMTONR01<cr>
Feedback 'AXMTONR01<cr> room 1 mute is on
Or 'AXMTOFR01<cr> room 1 mute is off

MUTE OFF
Unmutes the audio signal for the selected room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'SMTOFR01<cr> unmute room 1
Feedback 'AXMTOFR01<cr> room 1 mute is on
Feedback request 'GMTOFR01<cr>
Feedback 'AXMTONR01<cr> room 1 mute is on
Or 'AXMTOFR01<cr> room 1 mute is off
ROOM OFF
Shuts down the selected room. If it is the only room on in the system the response will be all off.

EXAMPLE 'SRMOFR01<cr> turn off room 1
Feedback 'AXRMOFR01<cr> or 'AXALOFG00 all off when last room turned off
Feedback Request 'GRMOFR01<cr>
Feedback 'AXRMOFR01<cr> room 1 is off
Or 'AXAD##R01<cr> current input selected for room 1
Or 'AXALOFG00<cr> system is off

VOLUME UP
Advances the volume by 1 up to a maximum of 40 for a given room. If the volume has reached 40 any additional commands will result in a volume level of 40. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'SVLUPR01<cr> increment volume up by 1 in room 1
Feedback 'AXV###R01<cr> current volume set in room 1
Feedback Request 'GVLUPR01<cr>
Feedback 'AXV###R01<cr> current volume set in room 1

VOLUME DOWN
Decrements the volume by 1 to a minimum of 0 for a given room. If the volume has reached 0 and additional commands will result in a volume level of 0. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'SVLDNR01<cr> decrement volume by 1 in room 1
Feedback 'AXV###R01<cr> current volume set in room 1
Feedback Request 'GVLDNR01<cr>
Feedback 'AXV###R01<cr> current volume set in room 1

VOLUME DIRECT
Allows you to go directly to a volume level for a given room. The function command is in the form of V### where ### is a number from 000 to 040. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'SV040R01<cr> set maximum volume in room 1
Feedback 'AXV040R01<cr> volume is set to maximum in room 1
Feedback Request 'GV###R01<cr>
Feedback 'AXV###R01 current volume value for room 1
BASS UP
Advances bass by 2dB for a given room. The range of Bass is +12dB to -12dB incremented by 2dB. When set to 0dB bass is flat. No function when room is off. Feedback request allowed when room is off.

EXAMPLE
'SBSUPR01<cr> increment bass up by one step in room 1

Feedback
'AXB###R01<cr> current bass value for room 1
(-12,-10,-08,-06,-04,-02,000,+02,+04,+06,+08,+10,+12)

Request Feedback 'GBSUPR01<cr>
Feedback
'AXB###R01<cr> current bass value for room 1

BASS DOWN
Decrements bass by 2dB for a given room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE
'SBSDNR01<cr> decrement bass by one step in room 1

Feedback
'AXB###R01<cr> current bass value for room 1

Request Feedback 'GBSDNR01<cr>
Feedback
'AXB###R01<cr> current bass value for room 1

BASS DIRECT
Allows you to go directly to a bass value for a given room. No function when room is off. Feedback request allowed when room is off.
The command is in the form of B### where ### can be any of 13 values and is signed. The possible combinations are:
B-12,B-10,B-08 B-06,B-04,B-02,B000, B+02,B+04,B+06,B+08,B+10,B+12

EXAMPLE
'SB+12R01<cr> set maximum bass in room 1

Feedback
'AXB+12R01<cr> current bass value for room 1
Request Feedback 'GB+12R01<cr>
Feedback
'AXB###R01<cr> current bass value for room 1

TREBLE UP
Advances treble by 2dB for a given room. No function when room is off. Feedback request allowed when room is off.
The range of treble is +12dB to -12dB. When set to 0dB treble is flat.

EXAMPLE
'STRUPR01<cr> increment treble up one step

Feedback
'AXT###R01<cr> current treble value for room 1
(-12,-10,-08,-06,-04,-02,000,+02,+04,+06,+08,+10,+12)

Request Feedback 'GTRUPR01<cr>
Feedback
'AXT###R01<cr> current treble value for room 1
TREBLE DOWN
Decrements treble by 2dB for a given room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'STRDNR01<cr> decrement treble by 1 step in room 1

Feedback 'AXT###R01<cr> current treble value for room 1

Request Feedback 'GTRDNR01<cr>

Feedback 'AXT###R01<cr> current treble value for room 1

TREBLE DIRECT
Allows you to go directly to a treble value for a given room. No function when room is off. Feedback request allowed when room is off.
The command is in the form of T### where ### can be any of 13 values and is signed. The possible combinations are:
  T-12, T-10, T-08, T-06, T-04, T-02, T000, T+02, T+04, T+06, T+08, T+10, T+12

EXAMPLE 'ST+12R01<cr> set maximum treble in room 1

Feedback 'AXT+12R01<cr> current treble value for room 1

Request Feedback 'GT###R01<cr>

Feedback 'AXT###R01<cr> current treble value for room 1

TONE STORE 1-4
Allows you to store 4 preset combinations of bass, treble, loudness contour and stereo enhance for a given room. This command will store the current active tone values. No function when room is off. Feedback request allowed when room is off.

EXAMPLE 'STNS1R01<cr> store current room 1 tone settings in tone recall 1

Feedback 'AB1###R01<cr> tone preset 1 bass value
  'AT1###R01<cr> tone preset 1 treble value
  'ALD1OFR01<cr> or 'ALD1ONR01<cr> tone preset 1 loudness off or on
  'AST1OFR01<cr> or 'AST1ONR01<cr> tone preset for stereo enhance off/on

Feedback Request 'GTNS1R01<cr>
  Feedback 'AB1###R01<cr> tone preset 1 bass value
  'AT1###R01<cr> tone preset 1 treble value
  'ALD1OFR01<cr> or 'ALD1ONR01<cr> tone preset 1 loudness off or on
  'AST1OFR01<cr> or 'AST1ONR01<cr> tone preset for stereo enhance off/on
TONE RECALL 1-4
Allows you to recall 4 pre-stored combinations of bass, treble, loudness contour and stereo enhance. No function when room is off. Feedback request allowed when room is off.

**EXAMPLE**

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘STNR1R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘AXB###R01&lt;cr&gt;</td>
</tr>
<tr>
<td>‘AXT###R01&lt;cr&gt;</td>
</tr>
<tr>
<td>‘AXLDONR01&lt;cr&gt; or ‘AXLDOFR01&lt;cr&gt;</td>
</tr>
<tr>
<td>‘AXSEONR01&lt;cr&gt; or ‘AXSEOFR01</td>
</tr>
</tbody>
</table>

*Feedback Request*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘GTNR1R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

**VOLUME STORE 1-4**
Allows you store 4 preset volume levels for a given room. The current volume level active when command is initiated will be stored. No function when room is off. Feedback request allowed when room is off.

**EXAMPLE**

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘SVLS1R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘AV1###R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback Request*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘GVLS1R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

**VOLUME RECALL 1-4**
Allows you to recall 4 pre-stored volume levels for a given room. No function when room is off. Feedback request allowed when room is off.

**EXAMPLE**

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘SVLR1R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘AXV###R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback Request*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘GVLR1R01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

**LOUDNESS CONTOUR ON**
Turns on loudness contour mode for a given room. No function when room is off. Feedback request allowed when room is off.

**EXAMPLE**

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘SLDONR01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘AXLDONR01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback Request*

<table>
<thead>
<tr>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘GLDONR01&lt;cr&gt;</td>
</tr>
</tbody>
</table>

*Feedback* ‘AXLDONR01<cr> or ‘AXLDOFR01<cr> Loudness contour on or off in room 1
LOUDNESS CONTOUR OFF
Turns off loudness contour mode for a given room. No function when room is off. Feedback request allowed when room is off.
EXAMPLE  ‘SLDOFR01<cr> turn off loudness contour for room 1
Feedback  ‘AXLDOFR01<cr>
Feedback Request  ‘GLDOFR01<cr>
Feedback  ‘AXLDONR01<cr> or ‘AXLDOFR01<cr> Loudness contour on or off in room 1

STEREO ENHANCE ON
Turns on stereo enhance mode for a given room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SSEONR01<cr> turn on stereo enhance mode for room 1
Feedback  ‘AXSEONR01<cr>
Feedback Request  ‘GSEONR01<cr>
Feedback  ‘AXSEONR01<cr> or ‘AXSEOFR01<cr> Loudness contour on or off in room 1

STEREO ENHANCE OFF
Turns off stereo enhance mode for a given room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SSEOFR01<cr> turn off stereo enhance mode for room 1
Feedback  ‘AXSEOFR01<cr>
Feedback Request  ‘GSEOFR01<cr>
Feedback  ‘AXSEONR01<cr> or ‘AXSEOFR01<cr> Loudness contour on or off in room 1

STEREO
Places a given room in Stereo mode. No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SSTOR01<cr> place room 1 in stereo mode
Feedback  ‘AXSTOR01<cr>
Feedback Request  ‘GSTOR01<cr>
Feedback  ‘AXSTOR01<cr> or room 1 in stereo mode
‘AXMINLR01<cr> or room 1 in mono input left mode
‘AXMINRR01<cr> room 1 in mono input right mode

MONO INPUT LEFT
Selects left source input to be routed to left and right speakers for a given room
No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SMINLR01<cr> left input to left and right speakers in room 1
Feedback  ‘AXMINLR01<cr>
Feedback Request  ‘GMINLR01<cr>
Feedback  ‘AXSTOR01<cr> or room 1 in stereo mode
‘AXMINLR01<cr> or room 1 in mono input left mode
‘AXMINRR01<cr> room 1 in mono input right mode
MONO INPUT RIGHT
Selects right source input to be routed to left and right speakers for a given room
No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SMINRR01<cr>   right input to left and right speakers in room 1
Feedback  ‘AXMINRR01<cr>
Feedback Request  ‘GMINRR01<cr>
Feedback  ‘AXSTOR01<cr>    or room 1 in stereo mode
‘AXMINLR01<cr>    or room 1 in mono input left mode
‘AXMINRR01<cr>    room 1 in mono input right mode

BALANCE LEFT
Increment by 1 balance to the left for a given room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SBALLR01<cr>   increment by 1 balance to the left in room 1
Feedback  ‘AXB###R01<cr>  current balance value for room 1
                       (L40/R40/LEQ)
Feedback Request  ‘GBALLR01<cr>
Feedback  ‘AXB###R01<cr>   current balance value in room 1

BALANCE RIGHT
Increment by 1 balance to the right in a given room
No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SBALRR01<cr>   increment by 1 balance to the right in room 1
Feedback  ‘AXB###R01<cr>  current balance value for room 1
Feedback Request  ‘GBALRR01<cr>
Feedback  ‘AXB###R01<cr>   current balance value in room 1

BALANCE EQUAL
Sets balance equal for a given room
No function when room is off. Feedback request allowed when room is off.

EXAMPLE  ‘SBLEQR01<cr>  set balance equal in room 1
Feedback  ‘AXBLEQR01<cr>
Feedback Request  ‘GBLEQR01<cr>
Feedback  ‘AXB###R01   current balance value for room 1
BALANCE STORE 1-2
Allows you to store 2 balance settings for a given room. The current active balance setting is stored. No function when room is off. Feedback request allowed when room is off.

EXAMPLE
'SBL1R01<cr> store current room 1 balance setting in balance recall 1

Feedback
'A1B###R01<cr>

Feedback request
'GBL1R01<cr> request balance store 1 for room 1
'GBL2R01<cr> request balance store 2 for room 1

Feedback
'A1B###R01<cr> or 'A2B###R01<cr> balance stored in balance preset 1 for room 1

BALANCE RECALL 1-2
Allows you to recall 2 pre-stored balance setting for a given room. No function when room is off. Feedback request allowed when room is off.

EXAMPLE
'SBL1R01<cr> make balance recall 1 active for room 1

Feedback
'AXB###R01<cr> current balance value for room 1

Feedback request
'GBL1R01<cr> request balance store 1 for room 1
'GBL2R01<cr> request balance store 2 for room 1

Feedback
'A1B###R01<cr> or 'A2B###R01<cr> balance stored in balance preset 1 for room 1

INPUT LEVEL TRIM 1-16
This is a global command that allows you to trim louder input sources so they may be at relatively even volumes with other sources. When properly set any source can be selected and the volume for that room should not have to be re-adjusted. Every room in the system will attenuate the source by the value set, if any, with this command. The command structure is the function code selects which input trim to adjust followed by G for global and the 2 digit trim value. A trim level set to 00 will cause no attenuation for that input. Each value of trim is about 1.5dB of attenuation.

EXAMPLE
'SIT01G01<cr> Set input trim 1 for 1.5dB attenuation
'SIT16G02<cr> Set input trim 16 for 3dB attenuation
'SIT02G00<cr> Set input trim 2 for no attenuation

Feedback
'AXIT##G##<cr>

Feedback request
'GIT##G00<cr>

Feedback
'AXIT##G##<cr>
PARTY SET 1-4
Allows any given room to become a “member” of party 1-4

EXAMPLE 'SPTS1R01<cr> set room 1 to be a member of party 1

Feedback 'AXPTS1R01<cr>
Feedback Request 'GPTS1R01<cr>
Feedback 'AXPTS1R01<cr> or room 1 is in party 1
'AXPTC1R01 room 1 is not in party 1

PARTY CLEAR 1-4
Clears a given room from party 1-4

EXAMPLE 'SPTC1R01<cr> clear room 1 from party 1

Feedback 'AXPTC1R01<cr>
Feedback Request 'GPTC1R01<cr>
Feedback 'AXPTS1R01<cr> or room 1 is in party 1
'AXPTC1R01 room 1 is not in party 1

PARTY 1-4
The party command is a global function of 4 pre-selected groups of rooms. The room members of each party are turned on and set to the same source input in the command string. The 2 characters after the G specify the input to set the party to in the range 01 to 16.

EXAMPLE 'SPTY1G01<cr> set all members of party 1 to input 1

Feedback current room inputs for each room in party 'AXAD##R##<cr>

PAGING OVERVIEW
The paging function of the preamplifier actually has 9 ways to accomplish paging. There are 8 paging groups any room can become a “member” of. Each room also has a serial command to pre-set a paging level for that room. When a room is paged all balance and tone controls are nulled and the preset page volume is set. After completion of page, control resume their setting previous to the page. If the room had been turned off it will turn on for the page and then turn off again when the page is completed. The first 6 groups use serial controlled paging. Group 7 is the auto paging mode and is hardware controlled. This is controlled by an audio level detector. When an audio signal applied to the auto page input exceeds a predetermined level, all members that are part of group 7 are paged. In the event of interference or noise inadvertently activating auto page, there is a serial command which can activate or deactivate the auto page mode. Group 8 is another hardware controlled paging mode. This is a simple dry contact input that will page members of group 8. The ninth method of paging is the room to room page. With this command any room can be discretely paged. Only one page can occur at one time. The method of page activation must also be used to cancel the page. For example, a manual page by contact closure must be cancelled by opening the contact. An auto page by audio level activation must be cancelled by the level being below the trigger threshold. Any serial controlled page must be cancelled by a serial command. For serial command page groups 1-6, if the room initiating the page is part of the group, it will be omitted so no audio feedback occurs. Functions are as follows:
PAGE VOLUME PRESET
Allows a predetermined paging level to be set for a given room. The command structure is 
PV## where ## is the preset page volume 00 to 40

EXAMPLE
‘SPV40R01<cr> set page volume to maximum for room 1

Feedback ‘AXPV40R01<cr>
Feedback Request ‘GPV##R01<cr>
Feedback ‘AXPV##R01<cr> current page volume preset value

PAGE DIRECT (direct page to only one room)
 Allows direct paging to a specific room. The room is specified by the 2 characters after the G 
in the range of 01 to 96. Must be cancelled by the page off command

EXAMPLE
‘ SPDONG01<cr> page room 1 only

Feedback ‘AXPDONG01<cr>
Feedback Request ‘GPDONG00<cr>
Feedback ‘AXP#O#G00<cr> current paging mode

PAGE OFF
This is a global command used to turn off any serial page mode.

EXAMPLE
‘SPGOFG00<cr>

Feedback ‘AXPGOFG00<cr>
Feedback Request ‘GPFOFG00<cr>
Feedback ‘AXP#O#G00<cr> current paging mode

PAGE ENABLE GROUP 1-8
Allows any room to become a “member” of any paging group 1-8

EXAMPLE
‘SPGS1R01<cr> make room 1 a member of paging group 1

Feedback ‘AXPGS1R01<cr>
Feedback Request ‘GPGS#R##<cr>
Feedback ‘AXPGS#R##<cr> page for # group set for room ## or
‘AXPGC#R##<cr> page for # group not set for room ##

PAGE DISABLE GROUP 1-8
Clears any room from any paging group 1-8

EXAMPLE’SPGC1R01<cr>clear room 1 from paging group 1

Feedback ‘AXPGC1R01<cr>
Feedback Request ‘GPGC#R##<cr>
Feedback ‘AXPGS#R##<cr> page for # group set for room ## or
‘AXPGC#R##<cr> page for # group not set for room ##
PAGE GROUP 1-6
Serial controlled paging of any group 1-6. Must be followed by the page off command when page completed. For audio feedback prevention, include the room number after the G to temporarily exclude it from the group.

EXAMPLE
'SP#ONG00<cr> or page a group where # = 1 to 6
'SP#ONG30<cr> page but exclude room 30

Feedback
'AXP#ONG00<cr>

Feedback Request
'GP#ONG00<cr>
Feedback
'AXP#ONG00<cr> or current active page mode
'AXPGOFG00<cr> all page modes off

AUTO PAGE ON
Turns on the audio level detector for group 7. This is a global command.

EXAMPLE
'SPAONG00<cr> make auto paging active

Feedback
'AXPAONG00<cr>

Feedback Request
'GPAONG00<cr>
Feedback
'AXPAONG00<cr> or
'AXPAOFG00<cr>

AUTO PAGE OFF
Turns off audio level detector for group 7 and cancels any page mode. This is a global command

EXAMPLE
'SPAOFG00<cr> make auto paging inactive

Feedback
'AXPAOFG00<cr> or
'AXPGOFG00<cr>

Feedback Request
'GPAOFG00<cr>
Feedback
'AXPAOFG00<cr> or
AXPAOFG00<cr>

AUTO PAGE (aka group 7)
Audio level detection activated page. When audio exceeds a predetermined trigger threshold page will activate for all rooms that are members of group 7. Paging is complete when audio is below the trigger threshold. This is a hardware controlled feature. It must be enabled using the auto page on command.

Feedback when activated
'AXP7ONG00<cr>
When deactivated
'AXPGOFG00<cr>
MANUAL PAGE (aka group 8)
Contact closure controlled page. All members of group 8 are paged. When contacts are released paging is complete.

Feedback when activated ‘AXP8ONG00<cr>
When deactivated ‘AXPGOFG00<cr>

MAXIMUM ALLOWABLE VOLUME
Allows you to set a maximum allowable volume level per room. The command is in the form of MV## where ## is the allowable level 10 to 40.

EXAMPLE ‘SMV40R01<cr> set maximum volume to 40 for room 1

Feedback ‘AXMV40R01<cr>
Feedback Request ‘GMV##R##
Feedback ‘AXMV##R##

ROOM TURN ON WITH LAST USED VOLUME, TONE, BALANCE
Room will turn on and use previous volume, bass, treble, stereo enhance, loudness contour and balance settings.

EXAMPLE ‘SVPOFR01<cr> use previous settings for tone, balance and volume in room 1

Feedback ‘AXVPOFR01<cr>
Feedback Request ‘GVPOFR01<cr>
Feedback ‘AXVPONR01<cr> or ‘AXVPOFR01<cr>

ROOM TURN ON WITH VOLUME, TONE AND BALANCE IN PRESET 1
Room will turn on using volume, bass, treble, stereo enhance, loudness contour and balance stored in volume preset 1, tone preset 1 and balance preset 1.

EXAMPLE ‘SVPOFR01<cr> use preset 1 for tone, balance and volume

Feedback ‘AXVPOFR01<cr>
Feedback Request ‘GVPOFR01<cr>
Feedback ‘AXVPONR01<cr> or ‘AXVPOFR01<cr>

VERSION REQUEST
This is a global command which will indicate the software version of each card. All audio cards in the system will respond sequentially.

EXAMPLE Feedback Request ‘GVERSG00<cr>

Feedback ‘A0VERS1.4<cr> card 0 has version 1.4 software
‘A1VERS1.4<cr> card 1 has version 1.4 software
RESET TO FACTORY DEFAULT VALUES
Resets all parameters to factory default values. All volumes and volume presets are set to half, bass and treble set flat, balance and balance presets set to equal, stereo enhance off, loudness contour off, stereo mode on, mute off, all rooms off, all input trims 0, all page groups cleared, all parties cleared, all tone presets, bass and treble set flat, stereo enhance off, loudness contour off, auto page off, maximum volume per room set to 40, page volume per room set to 30, auto page mode off, power up on last room parameters.

EXAMPLE  ‘SFDEFG00<cr> reset unit to factory default values
Feedback  ‘AXFDEFG00<cr>

UPDATE ALL ROOM PARAMETERS
This is a global command which will feedback all parameters of every room in the system and also global parameters. This command can be requested only.

EXAMPLE  ‘GALRMG00<cr>
Feedback  ‘AXPAO#G00<CR> auto page on/off
‘AXIT01G##<CR> input trim 1
‘AXIT02G##<CR> input trim 2
‘AXIT03G##<CR> input trim 3
‘AXIT04G##<CR> input trim 4
‘AXIT05G##<CR> input trim 5
‘AXIT06G##<CR> input trim 6
‘AXIT07G##<CR> input trim 7
‘AXIT08G##<CR> input trim 8
‘AXIT09G##<CR> input trim 9
‘AXIT10G##<CR> input trim 10
‘AXIT11G##<CR> input trim 11
‘AXIT12G##<CR> input trim 12
‘AXIT13G##<CR> input trim 13
‘AXIT14G##<CR> input trim 14
‘AXIT15G##<CR> input trim 15
‘AXIT16G##<CR> input trim 16

and then same feedback as update room for each room
UPDATE ALL ROOM CONTROLS
This is an abridged request that only replies with certain room parameters for all rooms as follows:

EXAMPLE
‘GALRCG00<cr>

Feedback  *this feedback sequence is repeated for each room

‘AXV###R##<cr> volume
‘AXB###R##<cr> bass
‘AXT###R##<cr> treble
‘AXB###R##<cr> balance
‘AX#####R##<cr> current input or room off or all off
‘AXVPO#R##<cr> volume preset on/off
‘AXMV##R##<cr> max volume
‘AXMTO#R##<cr> mute on or off
‘AX#####R##<cr> stereo or mono in L or mono in R
‘AXLDO#R##<cr> loudness contour on/off
‘AXSEO#R##<cr> stereo enhance on/off

UPDATE A SINGLE ROOM CONTROL
This is like the Update All Room Controls command but replies with information for a single room.

EXAMPLE
‘GRCNR01<cr>

Feedback
‘AXV###R01<cr> volume
‘AXB###R01<cr> bass
‘AXT###R01<cr> treble
‘AXB###R01<cr> balance
‘AX#####R01<cr> current input or room off or all off
‘AXVPO#R01<cr> volume preset on/off
‘AXMV##R01<cr> max volume
‘AXMTO#R01<cr> mute on or off
‘AX#####R01<cr> stereo or mono in L or mono in R
‘AXLDO#R01<cr> loudness contour on/off
‘AXSEO#R01<cr> stereo enhance on/off

UPDATE ROOM
All parameters for any single room

EXAMPLE
‘GROOMR##<cr>

Feedback
‘AXV###R01<cr> volume
‘AXB###R01<cr> bass
‘AXT###R01<cr> treble
‘AXB###R01<cr> balance
<table>
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<th>Command</th>
<th>Description</th>
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<td>current input or room off or all off</td>
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<td><code>AXVPO#R01&lt;cr&gt;</code></td>
<td>volume preset on/off</td>
</tr>
<tr>
<td><code>AXMV##R01&lt;cr&gt;</code></td>
<td>max volume</td>
</tr>
<tr>
<td><code>AXMTO#R01&lt;cr&gt;</code></td>
<td>mute on or off</td>
</tr>
<tr>
<td><code>AX ###R01&lt;cr&gt;</code></td>
<td>stereo or mono in L or mono in R</td>
</tr>
<tr>
<td><code>AXLDO#R01&lt;cr&gt;</code></td>
<td>loudness contour on/off</td>
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<td><code>AXSEO#R01&lt;cr&gt;</code></td>
<td>stereo enhance on/off</td>
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<td>tone preset 1 treble value</td>
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<td>tone preset 1 for stereo enhance off/on</td>
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<td>tone preset 3 treble value</td>
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<tr>
<td><code>AB4###R01&lt;cr&gt;</code></td>
<td>tone preset 4 bass value</td>
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<td><code>AT4###R01&lt;cr&gt;</code></td>
<td>tone preset 4 treble value</td>
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<td><code>AXPG#2R01&lt;cr&gt;</code></td>
<td>page enable 2</td>
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<td><code>AXPG#3R01&lt;cr&gt;</code></td>
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<td><code>AXPG#4R01&lt;cr&gt;</code></td>
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<td><code>AXPG#5R01&lt;cr&gt;</code></td>
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<td><code>AXPG#7R01&lt;cr&gt;</code></td>
<td>page enable 7</td>
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<tr>
<td><code>AXPG#8R01&lt;cr&gt;</code></td>
<td>page enable 8</td>
</tr>
</tbody>
</table>
CHARACTER ECHO COMMAND

The character echo command is useful when data is to be sent from one remote control device to another. Normally a remote control device can only send data to the Suite 16 unit to request a function. For specialized functions such as label copying, the character echo command can be utilized. The command begins by using a ‘ just like all other commands and is then followed by E for echo. You then tell the system how many characters you want to echo in the value of 1 to 255 not including the first 3 characters (‘E and #bytes to send . This is a binary value, NOT an ASCII value.

EXAMPLE

SEND to suite16'E 21 send this to a remote
REPLY from suite16send this to a remote

In the above example “send this to a remote” is 21 characters including the spaces. If you send less characters than specified, the system will time out after about 1/2 second and take commands normally for any function. If you send more characters than specified, the echo will complete after the number of characters specified. Any additional characters will be invalid.

Suite 16 Video Card V1.1 or V1.2 Protocal Explanation

1. FEEDBACK DISABLE ****this is not yet implemented or must have traces cut to accomplish***

For Multiple card ie for S-video set to the same room group, There should be a hardware pin to disable the serial TX as more than one card with the same address could be confusing to program serially.

2. DIRECT VIDEO SELECTION has feedback

This function is always active. At anytime any output may be assigned a video input or turned off.

Feedback will be generated from this command.

Code examples

'SVD01R01<cr> select video input 1 for output into room 1
'SVD16R80<cr> select video input 16 for output into room 80
'SVD00R50<cr> turn video off in room 50
3. **VIDEO FOLLOWING AUDIO/INDEPENDANT VIDEO** has feedback

This function is assignable for every input in any given room. That way if only a few of the inputs are video components only those set will follow audio selections. If following is set for any input in a room, the remaining inputs not set to follow will turn off the room video output when selected. If following is not set for any input in a room, the video functions independently without any audio interaction at all.

Code examples

- `SFS01R01<cr>` video input 1 will follow audio in room 1
- `SFC01R01<cr>` video input 1 will not change with audio in room 1

4. **PARTY COMMAND**

Works just like audio party command but with no feedback using same set up commands as the P-16 audio card. Keep in mind video following settings will affect the party commands.

5. **HARDWARE TRIGGER VIDEO INPUT ASSIGN** has feedback

This serial command assigns which video inputs are used in conjunction with each of the four hardware triggers and fifth serial only trigger. Up to 16 inputs can be assigned to a trigger.

Code examples

- `SHI1SG01<cr>` assign to hardware trigger 1 video input 1
- `SHI4SG16<cr>` assign to hardware trigger 4 video input 16
- `SHI2CG15<cr>` disable from hardware trigger 2 video input 15

6. **TRIGGER OUTPUT ASSIGN** has feedback

This serial command assigns room outputs to one of the five trigger groups.

Code examples

- `SHO1SR01<cr>` Set room 1 to trigger 1
- `SHO1CR01<cr>` Clear room 1 from trigger 1
- `SHO5SR16<cr>` Set room 16 to trigger 5
- `SHO3CR08<cr>` Clear room 8 from trigger 3

7. **SOFTWARE CONTROL OF HARDWARE TRIGGERS**

This is a global serial command to activate triggers by command string. Result is same as if activated by hardware trigger. Trigger 5 is serial controlled only.

Code examples

- `STRG1G00<cr>` activate trigger 1
- `STRG2G00<cr>` activate trigger 2
- `STRG3G00<cr>` activate trigger 3
- `STRG4G00<cr>` activate trigger 4
- `STRG5G00<cr>` activate trigger 5
8. **VIDEO TRIGGER DWELL TIME** has feedback
This serial command globally sets the dwell time. Dwell time is the interval that a video input selection remains on until it switches to the next in sequence. Range is 1-60 seconds.

Code examples
- `SDWELG05<cr>` set dwell time to 5 seconds
- `SDWELG60<cr>` set dwell time to 60 seconds

9. **CYCLE COUNT** has feedback
This global serial command sets the number of cycles all triggers will have when activated. A cycle is equal to one sweep of any enabled inputs from 1-16 inclusive. Range is 1-99

Code examples
- `SCYCLG05<cr>` set to 5 cycles
- `SCYCLG99<cr>` set to 99 cycles

10. **HARDWARE TRIGGER ENABLE / DISABLE** has feedback
This serial command individually enables or disables the hardware trigger control inputs. Serial commands not affected.

Code examples
- `SHT1SG00<cr>` enable hardware trigger 1
- `SHT2CG00<cr>` disable hardware trigger 2
- `SHT3SG00<cr>` enable hardware trigger 3
- `SHT4CG00<cr>` disable hardware trigger 4

11. **VERSION REQUEST** has feedback
This serial command will give a response with the software version of all video cards

Code example
- `GVERSG00<cr>` get software version number

Response
- `A0VIDV1.1` first card
- `A1VIDV1.1` second card
# Suite 16 ASCII Codes

## Preamplifier Codes

<table>
<thead>
<tr>
<th>STRING FUNCTION</th>
<th>START ACTION PREFIX</th>
<th>DO (SET) GET FUNCTION</th>
<th>GLOBAL</th>
<th>PART 3 R01 TO R99</th>
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</thead>
<tbody>
<tr>
<td>INPUT UP</td>
<td>' '</td>
<td>S G INUP</td>
<td></td>
<td>R01</td>
</tr>
<tr>
<td>INPUT DOWN</td>
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<td>S G INDN</td>
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<tr>
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### Preamplifier Codes (cont.)

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<th>Action</th>
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<tr>
<td>INPUT LEVEL TRIM 9</td>
<td>' S G IT09 G##</td>
<td></td>
</tr>
<tr>
<td>INPUT LEVEL TRIM 10</td>
<td>' S G IT10 G##</td>
<td></td>
</tr>
<tr>
<td>INPUT LEVEL TRIM 11</td>
<td>' S G IT11 G##</td>
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<tr>
<td>INPUT LEVEL TRIM 12</td>
<td>' S G IT12 G##</td>
<td></td>
</tr>
<tr>
<td>INPUT LEVEL TRIM 13</td>
<td>' S G IT13 G##</td>
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</tr>
<tr>
<td>INPUT LEVEL TRIM 14</td>
<td>' S G IT14 G##</td>
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</tr>
<tr>
<td>INPUT LEVEL TRIM 15</td>
<td>' S G IT15 G##</td>
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</tr>
<tr>
<td>ALL OFF</td>
<td>' S G ALOF G00</td>
<td></td>
</tr>
<tr>
<td>PARTY SET 1</td>
<td>' S G PTS1 R01</td>
<td></td>
</tr>
<tr>
<td>PARTY SET 2</td>
<td>' S G PTS2 R01</td>
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<tr>
<td>PARTY SET 3</td>
<td>' S G PTS3 R01</td>
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<tr>
<td>PARTY CLEAR 1</td>
<td>' S G PTC1 R01</td>
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</tr>
<tr>
<td>PARTY CLEAR 2</td>
<td>' S G PTC2 R01</td>
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<tr>
<td>PARTY CLEAR 3</td>
<td>' S G PTC3 R01</td>
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<tr>
<td>PARTY CLEAR 4</td>
<td>' S G PTC4 R01</td>
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<tr>
<td>PARTY 1</td>
<td>' S G PTY1 G##</td>
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<tr>
<td>PARTY 2</td>
<td>' S G PTY2 G##</td>
<td></td>
</tr>
<tr>
<td>PARTY 3</td>
<td>' S G PTY3 G##</td>
<td></td>
</tr>
<tr>
<td>PARTY 4</td>
<td>' S G PTY4 G##</td>
<td></td>
</tr>
<tr>
<td>PAGE VOLUME PRESET</td>
<td>' S G PV## R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 1</td>
<td>' S G PGS1 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 2</td>
<td>' S G PGS2 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 3</td>
<td>' S G PGS3 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 4</td>
<td>' S G PGS4 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 5</td>
<td>' S G PGS5 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 6</td>
<td>' S G PGS6 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 7</td>
<td>' S G PGS7 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE ENABLE GROUP 8</td>
<td>' S G PGS8 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE DISABLE GROUP 1</td>
<td>' S G PGC1 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE DISABLE GROUP 2</td>
<td>' S G PGC2 R01</td>
<td></td>
</tr>
<tr>
<td>PAGE DISABLE GROUP 3</td>
<td>' S G PGC3 R01</td>
<td></td>
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<tr>
<td>PAGE DISABLE GROUP 4</td>
<td>' S G PGC4 R01</td>
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<tr>
<td>PAGE DISABLE GROUP 5</td>
<td>' S G PGC5 R01</td>
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<tr>
<td>PAGE DISABLE GROUP 6</td>
<td>' S G PGC6 R01</td>
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<tr>
<td>PAGE DISABLE GROUP 7</td>
<td>' S G PGC7 R01</td>
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<tr>
<td>PAGE DISABLE GROUP 8</td>
<td>' S G PGC8 R01</td>
<td></td>
</tr>
<tr>
<td>AUTO PAGE ON</td>
<td>' S G PAON G00</td>
<td></td>
</tr>
<tr>
<td>AUTO PAGE OFF</td>
<td>' S G PAOF G00</td>
<td></td>
</tr>
<tr>
<td>PAGE DIRECT</td>
<td>' S G PDON G##</td>
<td></td>
</tr>
<tr>
<td>PAGE GROUP 1</td>
<td>' S G P1ON G00</td>
<td></td>
</tr>
<tr>
<td>PAGE GROUP 2</td>
<td>' S G P2ON G00</td>
<td></td>
</tr>
<tr>
<td>PAGE GROUP 3</td>
<td>' S G P3ON G00</td>
<td></td>
</tr>
<tr>
<td>PAGE GROUP 4</td>
<td>' S G P4ON G00</td>
<td></td>
</tr>
<tr>
<td>PAGE GROUP 5</td>
<td>' S G P5ON G00</td>
<td></td>
</tr>
<tr>
<td>PAGE GROUP 6</td>
<td>' S G P6ON G00</td>
<td></td>
</tr>
<tr>
<td>PAGE OFF</td>
<td>' S G PGOF G00</td>
<td></td>
</tr>
<tr>
<td>AUTO PAGE</td>
<td>(audio level activated)</td>
<td></td>
</tr>
<tr>
<td>MANUAL PAGE</td>
<td>(contact closure activated)</td>
<td></td>
</tr>
<tr>
<td>MAXIMUM VOLUME LEVEL</td>
<td>' S G MV## R01</td>
<td></td>
</tr>
<tr>
<td>RESTORE FACTORY DEFAULTS</td>
<td>' S G FDEF G00</td>
<td></td>
</tr>
<tr>
<td>ALL UPDATE</td>
<td>' S G ALRM G00</td>
<td></td>
</tr>
<tr>
<td>ROOM UPDATE</td>
<td>' S G ROOM R01</td>
<td></td>
</tr>
<tr>
<td>ALL ROOM CONTROL UPDATE</td>
<td>' S G ALRC G00</td>
<td></td>
</tr>
<tr>
<td>ROOM CONTROL UPDATE</td>
<td>' S G RCON R01</td>
<td></td>
</tr>
<tr>
<td>VERSION REQUEST</td>
<td>' S G VERS G00</td>
<td></td>
</tr>
<tr>
<td>ECHO</td>
<td>' E # of bytes to follow 1-255</td>
<td>bytes to be sent</td>
</tr>
</tbody>
</table>
# Video Switching Codes V-16 V1.1 and V1.2

## Suite 16 Video card Protocol V1.1

<table>
<thead>
<tr>
<th>Function</th>
<th>Start</th>
<th>Set/Get</th>
<th>Input Function</th>
<th>Input #</th>
<th>Output Function</th>
<th>Room #</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set Video Following</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Tracks Audio Input</td>
<td>S</td>
<td>FS</td>
<td>01</td>
<td>R</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Video Tracks Nothing (Goes Off)</td>
<td>S</td>
<td>FC</td>
<td>01</td>
<td>R</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Get current following setting for input</td>
<td>G</td>
<td>FS or FC</td>
<td>01</td>
<td>R</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td><strong>Video Direct</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select a Video Input</td>
<td>S</td>
<td>VD</td>
<td>01</td>
<td>R</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Turn Video Off</td>
<td>S</td>
<td>VD</td>
<td>00</td>
<td>R</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Get current video input</td>
<td>G</td>
<td>VD</td>
<td>00</td>
<td>R</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td><strong>Trigger Input Assignment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign Input # to Trigger #</td>
<td>S</td>
<td>HI</td>
<td>1</td>
<td>SG</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Disable Input # from Trigger #</td>
<td>S</td>
<td>HI</td>
<td>1</td>
<td>CG</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Get current input assignment for input</td>
<td>G</td>
<td>HI</td>
<td>1</td>
<td>SG or CG</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td><strong>Trigger Output Assignment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assign Output # to Trigger #</td>
<td>S</td>
<td>HO</td>
<td>1</td>
<td>SR</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Disable Output # from Trigger #</td>
<td>S</td>
<td>HO</td>
<td>1</td>
<td>CR</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Get current output assignment for output</td>
<td>G</td>
<td>HO</td>
<td>1</td>
<td>SR or CR</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td><strong>Hardware Triggers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software activation of hardware trigger</td>
<td>S</td>
<td>TRG</td>
<td>1</td>
<td>G</td>
<td>00</td>
<td></td>
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<tr>
<td><strong>Hardware Triggers Enables</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable Hardware Trigger</td>
<td>S</td>
<td>HTS</td>
<td>1</td>
<td>G</td>
<td>00</td>
<td></td>
</tr>
<tr>
<td>Disable Hardware Trigger</td>
<td>S</td>
<td>HTC</td>
<td>1</td>
<td>G</td>
<td>00</td>
<td></td>
</tr>
<tr>
<td>Get current hardware trigger enable status</td>
<td>G</td>
<td>HTS or HTC</td>
<td>1</td>
<td>G</td>
<td>00</td>
<td></td>
</tr>
<tr>
<td><strong>Dwell Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dwell Time for all Triggers</td>
<td>S</td>
<td>DWEL</td>
<td></td>
<td>G</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Get current dwell time setting</td>
<td>G</td>
<td>DWEL</td>
<td></td>
<td>G</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td><strong>Cycle Count</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cycle Count for all Triggers</td>
<td>S</td>
<td>CYCL</td>
<td></td>
<td>G</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Get current cycle setting</td>
<td>G</td>
<td>CYCL</td>
<td></td>
<td>G</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td><strong>Version Request</strong></td>
<td>G</td>
<td>VERS</td>
<td></td>
<td>G</td>
<td>00</td>
<td></td>
</tr>
</tbody>
</table>
**Setup Features**

1111 = Check Keys
- Press & Hold EXTRA
- CODE: _ _ _ _
- Using the 8 source buttons enter the code "1111", where 1 is the source on the far left (FM1) and eight is on the far right (AUX)
- Press Any Button
- Reads Function
- Extra
- Normal Operation

1112 = IR On/Off
- Press & Hold EXTRA
- CODE: _ _ _ _
- Using the 8 source buttons enter the code "1112", where 1 is the source on the far left (FM1) and eight is on the far right (AUX)
- IR ON
- Normal Operation
- Or
- IR OFF
- Normal Operation

1113 = Blanking On/Off
- Extra
- CODE: _ _ _ _
- CODE: 1 1 1 3
- Using the << or >> buttons, you can change the room number this keypad will control.
- BLANKING ON
- Normal Operation
- Or
- BLANKING OFF
- Normal Operation

1116 = Set Room Number
- Extra
- CODE: _ _ _ _
- CODE: 1 1 1 6
- Using the << or >> buttons, you can change the room number this keypad will control.
- SET ROOM #
- Extra
- ROOM = #
- Normal Operation

1117 = Baud Rate 1200
- Extra
- CODE: _ _ _ _
- CODE: 1 1 1 7
- 1200 BAUD
- Normal Operation

1118 = Baud Rate 19200
- Extra
- CODE: _ _ _ _
- CODE: 1 1 1 8
- 19200 BAUD
- Normal Operation

*The keypad’s baud rate must match that of the Suite-16 in order for it to operate. Typically, the Suite 16 System’s baud rate is set to 19200. However, you may lower the baud rate to 1200. When doing so, make certain all keypads, Trinity, Aquarius, and IRL-5000 are also set to the same baud rate.*

*On the Suite 16, the baud rate is set individually on each P-16 Module and V-16 Module using the rotary address switch.*
Clock Setup

1115 = Clock Set

Using the 8 source buttons enter the code "1115", where 1 is the source on the far left (FM1) and eight is on the far right (AUX).

Press & Hold EXTRA

CODE: ___ ___

CLOCK SET

SET HOURS

SET MINUTES

SET MONTH

SET DATE

SET DAY

SET 12-24

SET YEAR

Press the >> or << button once to access the current value.

Normal Operation

EXTRA

Clock Setup

Suite-16 System MC-5000, MC-6000, MC-3000 OD, MC-3800 OD Programming Flow Chart

Press the >> or << button once to access the current value.

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA

Normal Operation

EXTRA
Using the 8 source buttons enter the code "1867", where 1 is the source on the far left (FM1) and eight is on the far right (AUX).

Press & Hold EXTRA

When the desired input is displayed, press the corresponding source button to lock the input.

You can set multiple source buttons to the same input, but only the first instance will illuminate from feedback.
Using the 8 source buttons enter the code "1867", where 1 is the source on the far left (FM1) and eight is on the far right (AUX).

When the desired source control option is displayed, press the corresponding source button to lock the control.

While you can use up to nine Trinity Tuner's per system (for 27 radio stations), typically the most common addressed is TUNER ADRS 1.

You can use up to eight Special CD Players (Aquarius Outputs).

The LVI is a contact closure device which permits a relay control of components. You can use up to eight LVI devices.

The NO FUNCTION option will permit the keypad source button to select a device but not control it.
Using the 8 source buttons enter the code “1867”, where 1 is the source on the far left (FM1) and eight is on the far right (AUX).

Press & Hold EXTRA

CODE: __ __

CODE: __ __

INSTALLER

Press & Hold EXTRA

CODE: __ __

Using the 8 source buttons enter the code “1867", where 1 is the source on the far left (FM1) and eight is on the far right (AUX).

INPUT CONFIG

SOURCE CNTRL

SOURCE LABEL

CHECK SETUP

PROGRAM ALL

There are several ways to create a custom label. You can use the built-in labels, modify labels from scratch, or combine them with different options.

By using the VOL UP or VOL DN buttons, you can access 41 predefined source labels. When the desired label is displayed, press the > button or use the <<, >>, STOP, & PAUSE buttons to make further changes.

It is important to note that all sixteen Suite-16 Sources require a label. These labels are created only once, using either the Suite-16 Keypad Configuration Program or a single keypad connected to the system.

Ideally, you will want to have all other keypads with a display online at the time of the PROGRAM ALL function which loads all keypads from a single keypad. You can opt to add keypads later and engage the PROGRAM ALL function at that time.
Using the 8 source buttons enter the code “1867”, where 1 is the source on the far left (FM1) and eight is on the far right (AUX).

Pressing the EXTRA button will return the keypad to normal operation, exiting the Installer Setup mode.

Check Setup is used to verify input numbers to source buttons, input labels, and secondary source control options.

Once you enter Check Setup by pressing the > button, the display will cycle through input number, input name, and source control.

To verify other sources, simply press the source button. The display will begin to cycle through that source buttons setup features.

Pressing the EXTRA button will return the keypad to normal operation, exiting the Installer Setup mode.
Using the 8 source buttons enter the code "1867", where 1 is the source on the far left (FM1) and eight is on the far right (AUX). Press & Hold EXTRA.

The PROGRAM ALL feature takes the keypad's information including input to source button assignments, source labels, and source control options and uploads them to other keypads connected to the network.

Note: If a keypad is not connected to the network, it will not get the upload.

If you have keypads on a network that are specially programmed (perhaps some source buttons are controlling local only sources), the PROGRAM ALL feature from a keypad without custom programming will override the custom programming previously created.

Suite-16 System
MC-5000, MC-6000, MC-3000 OD, MC-3800 OD
Programming Flow Chart
Appendix B - System Specifications

AVP-16 Size & Weight (with A-16, P-16, & V-16 Modules)

Width: 19” EIA Rack Mount  Height: 5.25” (3 Rack Spaces)  Depth: 20”

Weight: 26 lbs

Electrical Specifications

RCA Inputs: 47KΩ  Normal Input Volt.: 2V  Maximum Input Volt: 2.8V

Balanced Paging Input: 600Ω  Normal Input Volt.: 1V

Trigger Voltage Input: 3-24V  AC or DC Isolated

Output Voltage:
  Source Trigger: 12VDC  Max. Source All On: 300mA
  Zone Triggers: 12VDC  Max. Zone All On: 300mA

Audio Output Impedance: 50Ω Variable & Fixed

Fixed Output Gain: Unity 0dB

AC Power:

Inlet/Outlet: IEC-320

Input Voltage: 120V or 240V, 50-60Hz

Input Power: Max. 250W Fused

Typical Power: (1 x A-16, 1 x P-16, & 1 x V-16 {no Bus power}) = 45W

Max. Bus Power: 6 Amps @ 22VDC Unregulated

Max. Bus Power @ WH-3000/2000: 150mA typical at each port

MC-5011: Typical 45mA (Depending on LED settings)

MC-5000: Typical 60mA (Depending on LED settings)

Switched AC Outlet: IEC-320, 8 Amps Max.
Appendix C - 9 Pin D Connector Information

The following diagram indicates the pin connections for the 9-pin D connectors on used for zone low voltage triggering.

The P-16 Preamplifier Module, the PTM-1225 and the PTM-1260 all feature female jacks with the same pin configurations.

The DB-9 Termination Block or 9-Pin Ribbon Cable use male connectors that are diagrammed below.