



AVENUE

Avenue™ signal integration system

Avenue™ System Overview

ENSEMBLE
DESIGNS

Revision 8 SW 2.2.0

INTRODUCTION

This section of the Avenue System manual gives an overview of the entire Avenue system and describes installation of the 1 RU and 3 RU frames which house the optional modules. It also provides information on frame control and power supply modules, networking Avenue frames together and controlling them remotely with Avenue PC software and Avenue Touch Screens.

Installation and operation of the Avenue Touch Screens is also included in this section of the manual.

For information on using and installing the Avenue PC Application software, refer to the data pack that accompanies that option.

A separate data pack is shipped with every Avenue video and audio processing module describing installation, configuration and operation in detail.

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions.

Keep these instructions.

Heed all warnings.

Follow all instructions.

Do not use this equipment near water.

Clean only with dry cloth.

Do not block any ventilation openings. Install in accordance with the equipment instructions.

Do not install near any heat sources such as radiators, stoves or other apparatus that produce heat.

Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and third grounding prong. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus.

Only use attachments and accessories specified by Ensemble Designs.

Unplug this equipment when not used for long periods of time.

Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as when a power-supply cord is damaged, liquid has been spilled or subjects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

Risk of electric shock. Qualified service personnel should only access power supply after frame has been unplugged from power.

If the equipment is installed in a moveable cart, use caution when moving the equipment to avoid injury from tip-over.



S3125A

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SECTION 1 – AVENUE SYSTEM DESCRIPTION

INTRODUCTION

This section of the System Overview provides an overall description of Avenue components available as part of the Avenue Signal Integration System.

Avenue is a tray-based signal integration system that allows any combination of HD, SD, DVB-ASI, analog video and audio processing modules to be installed in a 3 RU or 1 RU Avenue frame. Module types include embedders, synchronizers, converters, routers, noise reducers, protection upconverters, and more. All modules are hot-swappable and, because of the universal backplane, no special rear connectors are needed.

Built-in networking allows you to tie the Avenue system together, streamlining control and monitoring. All frames and modules in the system can be accessed from multiple locations in a facility, including remote locations. Comprehensive management and control is achieved by using any combination of Touch Screens, Express Control Panels, and/or Avenue PC software. Front edge or local controls are also available for most modules.

AVENUE FRAMES AND MODULES

Two frames are available for the Avenue system: 1 RU and 3 RU. Both frames handle any mix of hot-swappable video and audio modules. Details for each frame type are given in the sections below.

Avenue 1 RU Frame

Each Avenue 1 RU frame can house any mix of three audio or video modules (except for the 5440 Router Expansion module). A single main 5010 Power Supply module supplies power to the system components.

Video and audio modules for conversion, distribution and synchronization plug into a universal frame motherboard. No separate rear connector cards are needed. Plastic overlays for each module type are provided and slip over the corresponding BNCs on the backplane to identify the input and output designations on each type of module.

In addition to the three audio or video modules, the optional 5035 System Control module adds the capability to distribute a master timing reference to each module in the frame. It also allows for ethernet and serial interface to the frame and is required for remote control from one of the Avenue remote control options. Any number of frames with System Control modules installed can be networked and controlled together via AveNet.

You can have complete control over configuration of module parameters and monitoring from any location in your facility using one of the Avenue remote control options. These include the stand alone Tabletop Touch Screen Control Panel, the Touch Screen Front panel installed in the 3 RU frame and the Avenue PC Application Software.



Avenue 1 RU Frame Front

Avenue 3 RU Frame

Each Avenue 3 RU frame can house any mix of ten audio or video modules. Each frame has a main Power Supply module which supplies power to the system components. An optional redundant Power Supply module is also available for each frame.

Video and audio modules for conversion, distribution and synchronization plug into a universal frame motherboard. No separate rear connector cards are needed. Plastic overlays for each module type are provided and slip over the corresponding BNCs on the backplane to identify the input and output designations on each type of module.

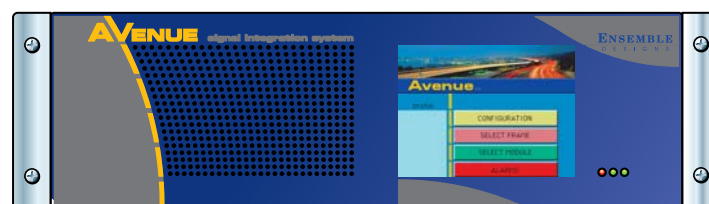
In addition to the ten audio and video modules, the optional 5030 System Control module adds the capability to distribute a master timing reference to each module in the frame. It also allows for ethernet and serial interface to the frame and is required for remote control from one of the Avenue remote control options. Any number of frames with System Control modules installed can be networked and controlled together via AveNet.

You can have complete control over configuration of module parameters and monitoring from any location in your facility using one of the Avenue remote control options. These include the stand alone Tabletop Touch Screen Control Panel, the Touch Screen Front panel installed in the 3 RU frame and the Avenue PC Software application.

Avenue 3 RU frames are available with either a plain door or one with the optional Touch Screen Panel installed as shown in the figures below.



Avenue 3 RU Frame



Avenue 3 RU Frame with Touch Screen

Video and Audio Modules

The Avenue modules available include the following types:

- Video conversion and synchronization
- Sync pulse and test signal generators
- Frame synchronizers
- 1.5 and 3 Gb/s high definition video
- ASI and SMPTE-310M modules
- Audio converters
- Audio embedders, disembedders, and shufflers
- Distribution amplifiers
- Video routers
- Protection switches
- Proc amps and noise reducers
- Logo inserter
- GPI/serial interface

New modules are being introduced all the time. To check for new modules as they become available, go to the the Ensemble Designs web site at www.ensembledesigns.com.

Each module has a separate data pack describing the installation, configuration and operation of the module. Every module ships from the factory with the data pack, labeled binder divider and the plastic overlay for the corresponding BNCs. Place the data pack into the System Manual binder for future reference.

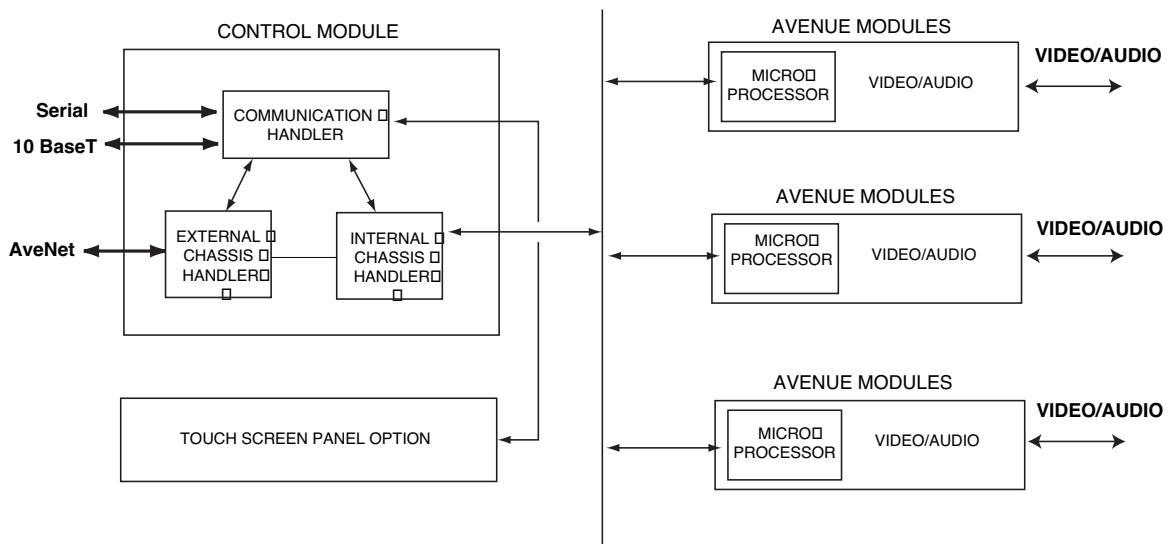
Any of the modules above can also be combined to create a “Virtual Module”. Virtual Modules are custom menus that combine functionality from any modules in the system. A Virtual Module is authored with Avenue PC (software version 2.0 and later) and exported (downloaded) to a control point server (Control module with software version 2.0 or later) on the network.

5030/5035 System Control Modules

The optional 5030 (3 RU Frame) or 5035 (1 RU Frame) System Control module provides the Serial, Ethernet and AveNet interface connections to an Avenue frame. Refer to the block diagram below. The module is required for remotely controlling and configuring the frame modules from the Avenue remote control options which include the Touch Screen panels and the Avenue PC Control Application Software.

In addition, the System Control module provides the looping genlock reference input for the frame and distributes a master timing reference to all modules throughout the frame. The module is required for making adjustments on synchronizer module options when they are installed.

A Status menu on the front of the module provides Ethernet, Serial and Reference communication indicators. Status menu functions also allow viewing of the current software version, viewing and setting of AveNet and IP Addresses and a Touch Screen Panel reset function. Refer to the **NETWORKING** section of this document for details.



Control System Block Diagram



Caution

Risk of electric shock. Qualified service personnel should only access power supply after frame has been unplugged from power.

This product may contain lasers. This is a Class A Laser Product. The optical output emits invisible radiation. Do not stare directly into the optical output beam or view directly with optical instruments.

5010/5020 Power Supplies

Each Avenue 1 RU frame includes a single 5010 Power Supply module. It installs in the upper right slot of the frame. Power is provided to all modules in the frame where it is regulated to the required voltages for the module.

Each Avenue 3 RU frame comes with one 5020 Power Supply module installed in one of the rightmost cells of the frame. An optional redundant power supply is available if desired to provide backup. Power is provided to all modules in the frame, the front door fan, and optional Touch Screen Panel.

Both the 5010 and 5020 power supplies are hot-swappable.

AVENUE CONTROL SYSTEM

Modules can be configured locally or controlled and configured remotely with the optional Avenue Touch Screen Panels, Express Control Panel, or the Avenue PC Control Application Software. Both remote control options require a System Control module (5030/5035) in each frame that will be remotely controlled. Communication between frames is done with the AveNet intraframe LAN bus connecting between the Control module in each frame or with Ethernet.

Alarms can be configured using Avenue PC. The Alarm menu in the application offers choices specific to the module or frame you want to monitor. Alarms can be set for the loss of reference to a particular module or for power failure to a particular frame. If an alarm occurs, the user can be alerted by a log entry being generated, an alarm sound on a PC, an email sent, or the user can be paged. A modem is required for email and pager choices.

Avenue PC also provides an authoring feature to create “Virtual Modules”. These custom menus combine functionality from any modules in the system. A Virtual Module could include controls from several different modules, such as an embedder module, a video converter module, and an audio delay module. The Virtual Module is downloaded to a frame Control module that acts as the server for control access.

Touch Screens and Avenue PC have four user levels: Admin, Level 1, Level 2, and View Only. These user levels allow access to module parameters to be controlled by a four digit passcode. Some user groups in a facility may require more expert level access to certain module parameters while others only require read-only access. Critical modules can even be locked out entirely or set for single control point access.

Avenue PC also provides a method to download software updates to modules on the network. Software updates for modules are posted on the Ensemble Designs web site and can be downloaded at no charge. This makes the latest software versions always available.

SECTION 2 – INSTALLATION

This section provides installation instructions for all Avenue hardware components including frames, modules, and Touch Screens. Avenue PC installation is covered in the data pack that accompanies the software.

FRAME INSTALLATION

The Avenue 1 RU (1.75 inches) and 3 RU (5.25 inches) frames fit in a standard 19 inch rack. Any number of frames may be stacked together, as illustrated in the figure at right.

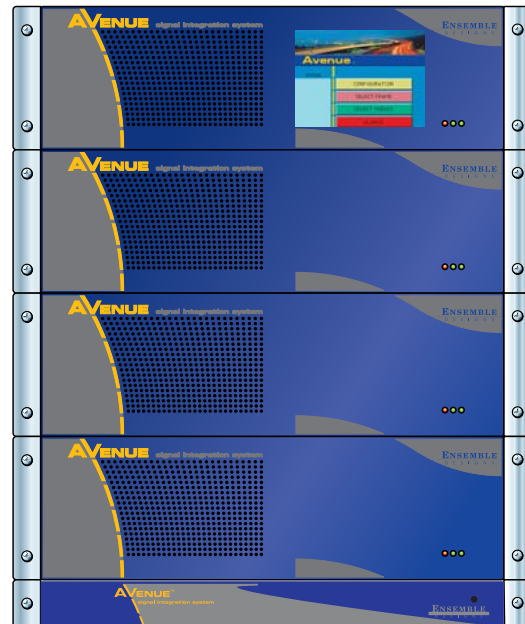
A fan in the front door of each 3 RU frame provides the necessary cooling for the frame. When a 5030 Control module (software version (2.2.1 or later) is installed in the frame, fan speed is microprocessor controlled based on the temperature inside the frame. The front door must be the latest version available (shipped after April, 2005) to have this functionality.

The frame temperature is reported in degrees centigrade and the percentage of fan capacity being used is given in the Frame Controller Information Touch Screen menu (described in the Operation section of this manual). When using Avenue PC, the temperature and amount of fan capacity being used is reported in Frame Configuration under the Frame pulldown. When no Control module is present, the fan runs at full speed.

Should the frame temperature become too high (above 45 degrees C), a red LED will light on the front panel. If using a remote control option, an alarm can be set to alert the user of an overtemperature condition.

The power supplies are auto-switching and no setting is necessary for selecting line voltages. Power supplies are hot-swappable.

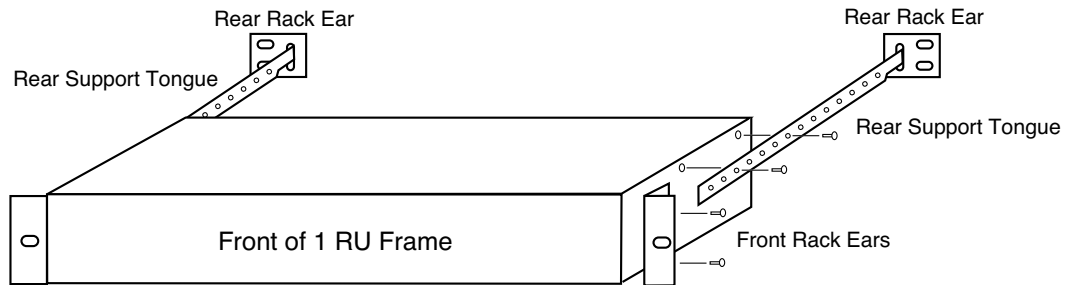
The fuses for the power supplies are located on the front of each supply and can be accessed from the front of the frame. Green LEDs on the front panel indicate status of the power supplies.



Stacked Avenue Frames

Front and rear rack ear kits are provided with the 1 RU for mounting the frame. Front rack ears are installed on the 3 RU frames at the factory and a rear rack ear kit is supplied with each frame.

To install the rack ears on either the 1 RU or 3 RU frames, locate the rear rack ear kits included with each frame. Each rear rack ear kit provided two rear rack ears, two slotted support tongues and screws for installation. Each frame has two holes on either side of the frame for installing the rear mounting hardware as shown in the illustration below.



Rack Ear Installation

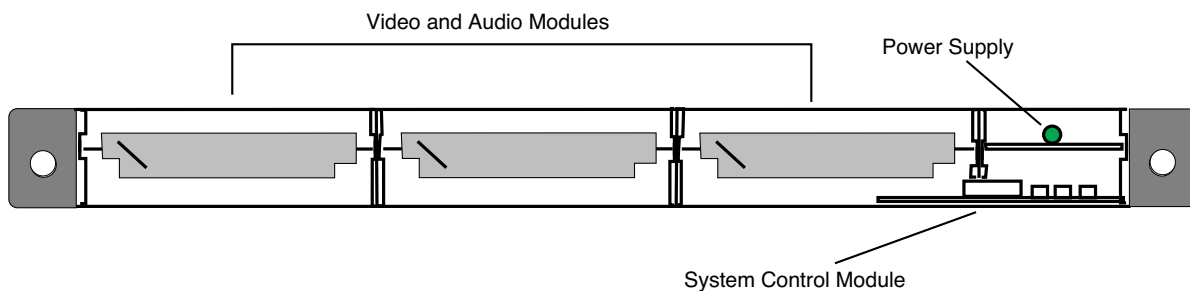
MODULE INSTALLATION

1 RU Frame

Modules are accessed and installed from the front of the frame. To access the modules in a 1 RU frame, remove the cover from the frame front. Grasp the front cover on either side and pull out to remove it.

Any type of video and audio modules may be installed in any of the three cells from the left as shown below (except the 5440 8x8 Expansion Router which requires a two-cell expanse). They may be hot-swapped (installed or moved without powering down the frame) at any time. If a module has been remotely configured, it may be moved without losing configuration information.

The optional System Control module is installed in the lower right cell under the power supplies, as shown below. The Power Supply module is installed in the right top cell of the frame.



1 RU Frame Module Installation (Front Cover Removed)

3 RU Frame

To access and install modules in the 3 RU frame, open the front door by depressing the latch on the left side of the frame and swinging the door open. The modules and power supplies are installed in the cell locations as shown in the figure on the top of the following page.

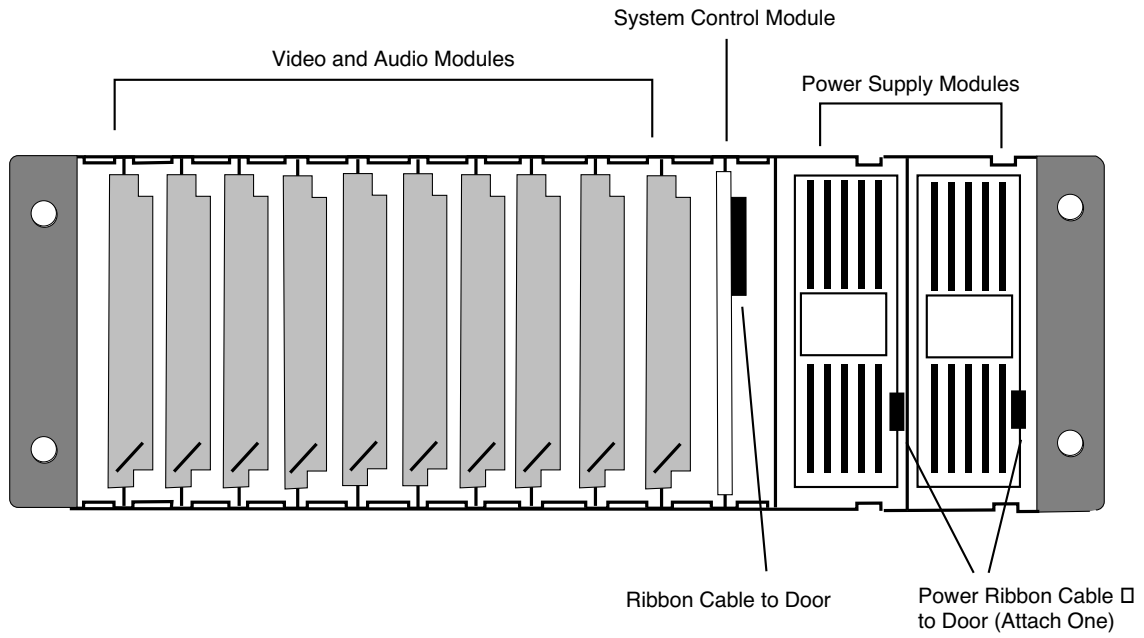
The video and audio modules may be installed in any of the first ten cells from the left. They may be hot-swapped (installed or moved without powering down the frame) at any time. If a module has been remotely configured, it may be moved without losing configuration information.

The System Control module is installed at the last cell before the power supplies, as shown. If the Touch Screen Panel option is installed in the front door, the ribbon cable from the System Control module must be connected to the corresponding connector on the inside of the front door as shown in the bottom figure. An additional serial port for connecting a PC running the PC Application Control Software option is provided at the **Serial Control** connector in the front door. This provides an easy access port for a laptop or other PC connection to control or configure the frame or frames.

The Power Supply modules are installed in the rightmost cells of the frame. The ribbon cable from the power supply must be connected to J1 on the inside of the front door. This provides power to the fan and the Touch Screen option in the front door. If redundant supplies are installed, one of the ribbon cables from either supply should be connected to connector J1.

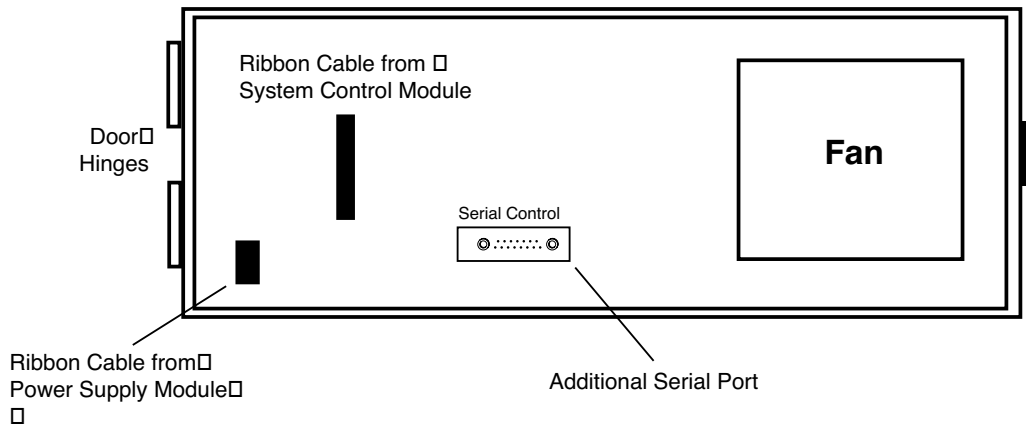
CAUTION:

Each power supply is protected from direct access by a metal safety panel. Removal of the safety panel exposes high voltages which can be a shock hazard. Power supplies should be installed and removed using the handle on the bracket only. When done, the safety panel should be replaced.



3 RU Frame Module Installation (Front Door Not Shown)

Inside Front Door



Inside Front Door of Frame (Frame Not Shown)

AVENUE TOUCH SCREEN INSTALLATION

This section explains any installation and cabling instructions necessary for using Avenue Touch Screen Control Panels. After installation, configuration of the network can be set up using the Touch Screen controls for each frame containing a Touch Screen and any Touch Screen Control Panels. Refer to the **NETWORKING** section later in this data pack for complete details.

Touch Screen Front Panel Installation

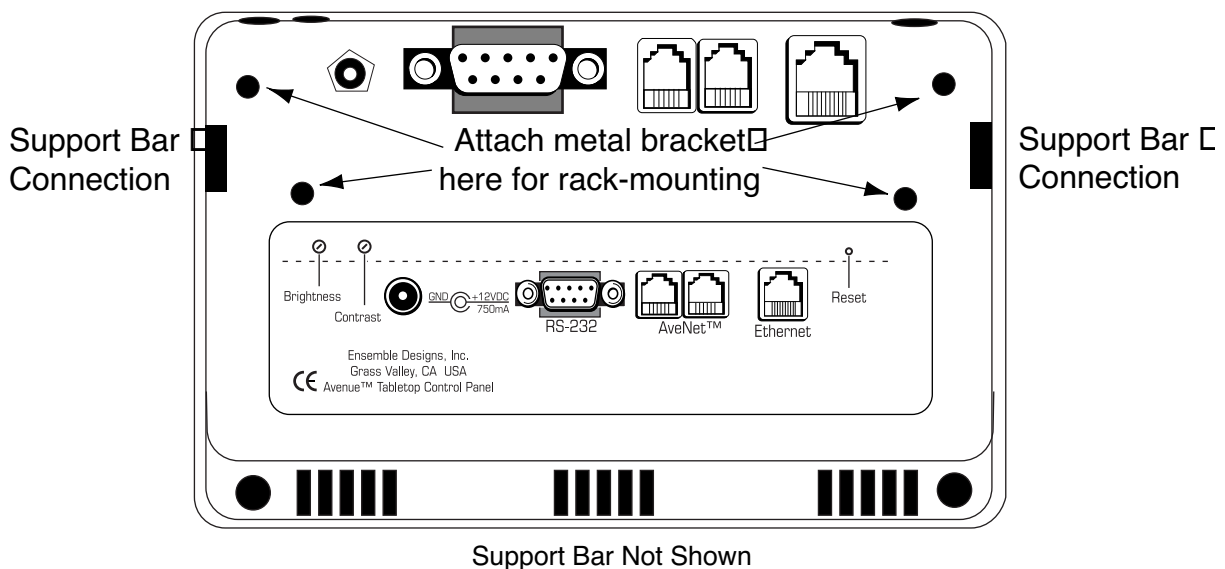
The Touch Screen Front Panel option comes installed in the front door of a 3 RU frame. Connections to the Touch Screen panel are made from the frame to the inside of the front door. The Touch Screen is powered from the frame power supply. Note that a 5030 System Control module is required for any frame being controlled with an Avenue Touch Screen door.

Tabletop Touch Screen Installation

The Tabletop Touch Screen Control Panel option can be set on any table surface, held as a laptop device or be installed directly into a standard 3 RU half-frame of a waveform monitor with a TableTop rack mounting kit available from the Ensemble factory. (Call the factory to obtain the kit with part number TBKLTCPRK)

All Tabletop connections and adjustments are clearly labeled on the rear of the unit as shown in the illustration below. Power to the Tabletop Control Panel is through an in-line AC power converter that accompanies the unit. Connect the in-line power unit to the AC connection shown in the illustration.

The position of the Tabletop support bar can be changed by ratcheting the bar to any angle desired. Rack mounting requires removing the support bar and installing the metal bracket onto the rear of the control panel with four screws. To remove the support bar, remove the two screws holding it to the control panel with a 1/8 inch allen wrench. Locate the four holes in the rear of the control panel casing for attaching the bracket as shown below.

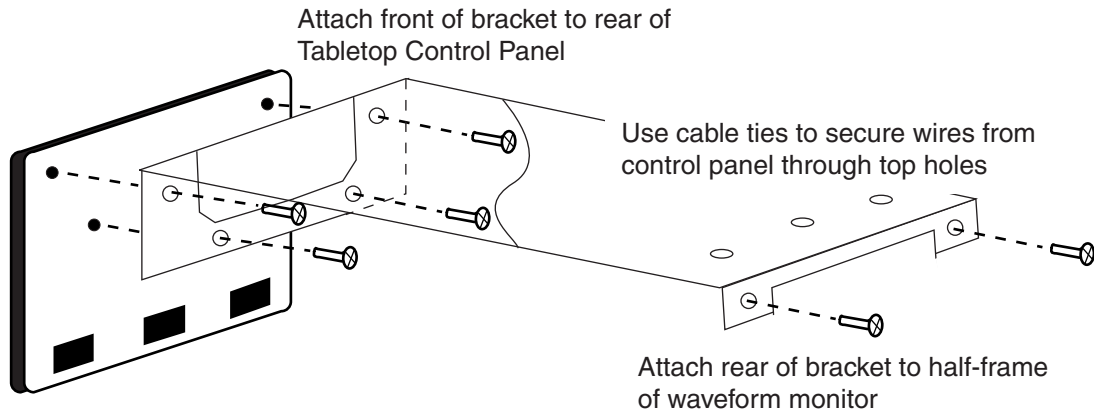


Tabletop Control Panel Rear View

Avenue System Overview

Attach the front of the metal bracket to the rear of the Touch Screen panel with the four screws provided as shown in the figure below.

Install the entire assembly into one side of a waveform monitor and secure to the rack with two rear screws (not provided). Use the holes in the top rear of the metal bracket to secure cables from the control panel with cable ties if desired.



Mounting Metal Bracket to Tabletop Control Panel

SECTION 3 – CABLING

This section provides cabling instructions for Avenue 1 RU and 3 RU frames and the Tabletop Touch Screen Control Panel. Video and control cabling for individual Avenue modules is explained in detail in the data pack provided with each module. Use this section in conjunction with the **NETWORKING** section to configure Avenue systems. Refer to the separate Avenue PC data pack for additional information on connections required for Avenue PC.

FRAME CABLING

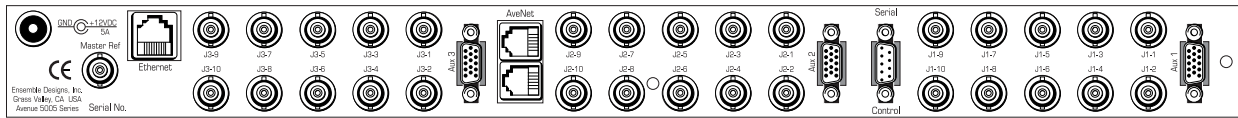
The remote control connectors, Master Reference Input, and the AC connections on the left of the 1 RU and 3 RU frame backplanes are shown in the illustrations below.

Video Connections

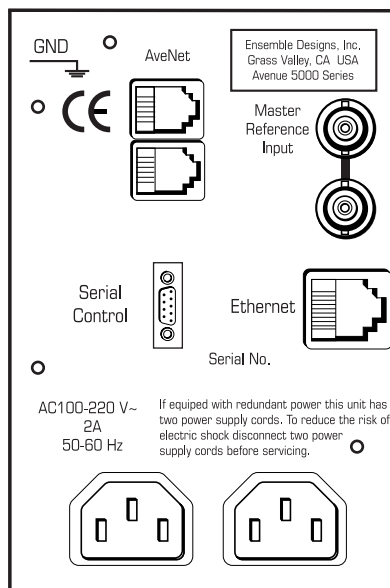
There is one Master Reference Input video connection to the frame in the control section shown in the illustrations for the 1 RU and 3 RU backplanes below.

Master Reference (1 RU and 3 RU Frame):

The **Master Reference Input** (timing) BNCs are used in conjunction with the optional System Control module for distributing a common video reference to all modules installed in a frame. This is a looping input and should be terminated in 75 Ω if not looped to another destination. A Control module must be installed for the Master Ref input to be present.



Avenue 1 RU Frame Backplane



Avenue 3 RU Frame Backplane Interface Connectors

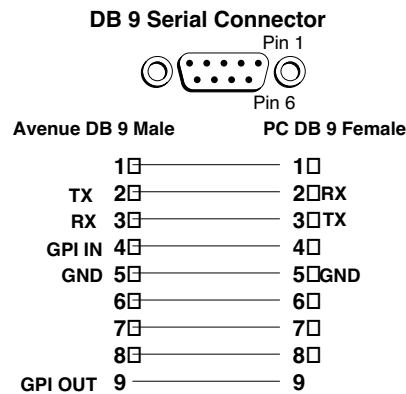
Control Connections

Use the remote control connections described below to interface an Avenue frame to a PC with the Avenue PC Control Application Software or using a Tabletop Touch Screen Control Panel. Remote control requires the presence of an optional System Control module in each frame being controlled.

Serial Control:

If remotely controlling a frame with the Avenue PC Control Application software through the PC serial port or using a Tabletop Control Panel serial connection, connect a 9-pin D to 9-pin D cable (pinout is shown in the pinout diagram below) from the **Serial Control** port on the Avenue frame to an unused serial port on your PC. Frames and control panels can be connected on an AveNet or Ethernet network.

Avenue PC can access any frame or control panels on the network. Refer to the Avenue PC Application documentation that shipped with your option for PC setup information.



NOTE: A pin-to-pin cable may be used if the GPI signals are not being used.

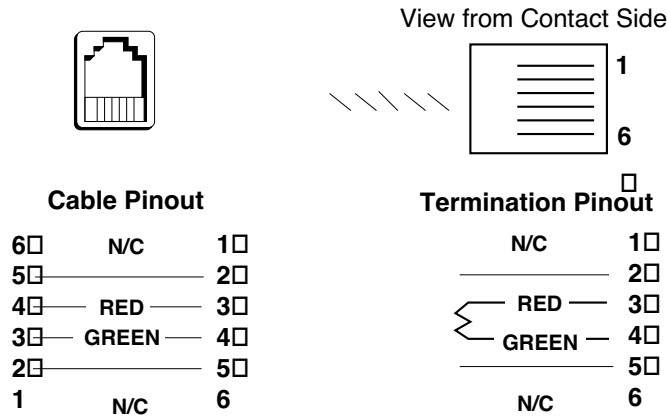
Serial Connector Pinout

AveNet:

AveNet is the Avenue control bus that allows communication between frames by the System Control modules in each frame. Up to 20 frames can be connected on each individual AveNet network. Any number of AveNet net networks can then be connected together via Ethernet. PC control is not required for using AveNet. You may use a single Avenue Control Panel to control a group of frames as explained previously. AveNet connection between frames requires looping between the standard RJ11 LAN connectors of each frame with standard phone cable or custom-made simple twisted pair LAN cable. The unused connectors must be terminated with 100 ohm LAN terminations at the first and last frames in the group. Pinouts of the RJ11 connector and termination are shown below.

Each Avenue device on the AveNet LAN network must have a different AveNet address. The address is set using the Status menu functions on the front of the 5030/35 Control module in each frame or a Touch Screen Panel if installed. Refer to the **NETWORKING** section for detailed information.

RJ11 Connector



AveNet RJ11 Connector Pinout

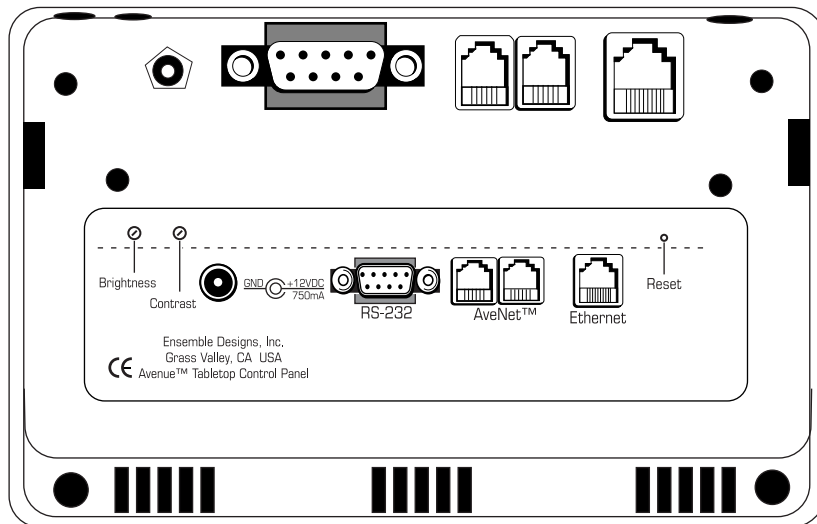
Ethernet:

The Avenue frame may be controlled by a PC running the Avenue PC Control application software connected to a 10BaseT Ethernet network. The IP Address for each frame is set on the System Control module in the frame or frames connected to the Ethernet network. The Avenue backplanes have a standard RJ45 connector for Ethernet interface.

Each frame on the Ethernet network must have a different IP Address. The address is set using the Status menu functions on the front of the 5030/35 Control Module in each frame or a Touch Screen Panel if installed. Refer to the **NETWORKING** section for detailed information.

TABLETOP CONTROL PANEL CABLING

A Tabletop Touch Screen control panel can be interfaced to the network to control frames using the same control interfaces as described above. The rear connections to a Tabletop Control Panel are shown below.

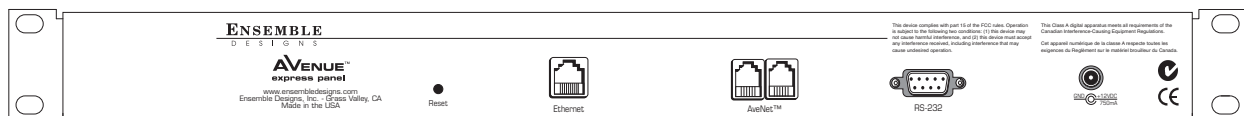


Support Bar Not Shown

Tabletop Control Panel Rear Backplane

EXPRESS PANEL CABLING

An Avenue Express Control Panel can be interfaced to the network to control frames using the same control interfaces as described above. Refer to the Avenue Express Control Panel data pack that accompanies the panel for complete details.

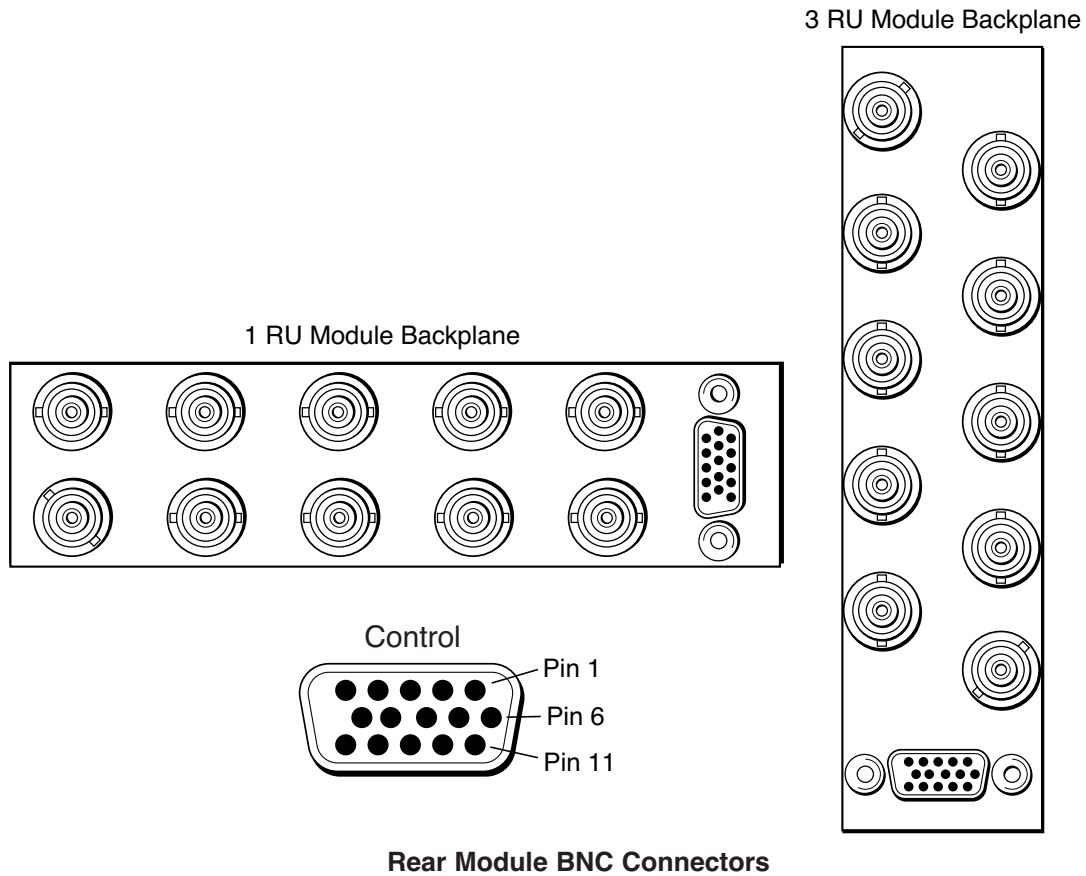


Express Control Panel Rear Backplane

MODULE CABLING

Each frame module provides 10 BNCs and a 15-pin high-density control connector for various inputs and outputs depending on the module functionality. A plastic overlay is provided with each module to identify the inputs and outputs to the module. The overlay is placed over the corresponding rear BNCs on the frame. The overlay may be placed permanently in a position by using the adhesive backing on each overlay or simply placed over the BNCs allowing the modules to be moved if desired.

The orientation of BNCs and the 15-pin connector for modules in the 1 RU and 3 RU are illustrated below. Refer to the individual module data packs for complete installation, setup and further cabling information.



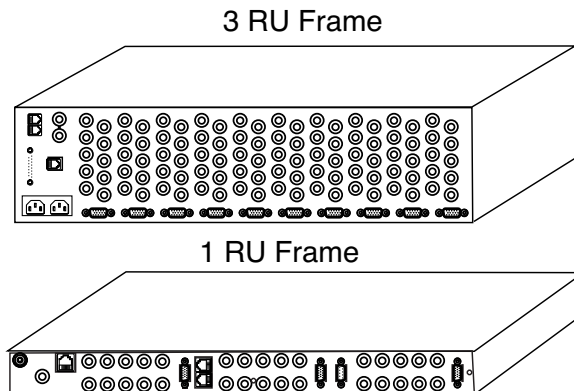
SECTION 4 – NETWORKING

This section provides instructions for connecting Avenue remote control devices together, including installing them into a network. Refer to the previous **CABLING** section for connector pinouts and other cabling information. Use this section for installing Avenue remote control points into a network and setting IP addresses. An overview of the Avenue security options is also given at the end of this section.

LOCAL FRAME OPERATION

Each Avenue frame can operate in standalone mode. Settings can be configured locally from the front edge controls of the modules. Parameters that have no local control will default to a standard setting. Modules used in local mode do not need a System Control module installed in the frame but will be unable to communicate with other Avenue frames. Rear views of stand alone 1 RU and 3 RU frames are shown in the figure below.

Local controls are explained in detail in each module data pack. The Remote/Local switch must be set to **Local** on each module for the on-board settings to be enabled.



Avenue Standalone Frames (Cabling Not Shown)

REMOTE CONTROL OPERATION

All modules in the system can be accessed from multiple locations by using one or both of the optional remote control options, Avenue Touch Screen Panels or Avenue PC Control Application Software. When a System Control module is installed in each Avenue frame in the system, all frames can be connected together in a network. Any number of frames may be linked together through the AveNet control bus and controlled by a single control panel or a PC running the Avenue PC application software. Multiple PCs and control panels can be connected to Avenue frames for remote control.

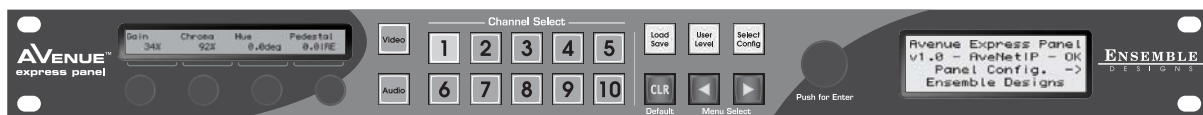
The control panels and Avenue PC control points have four user levels for security: Admin, Level1, Level2 and View Only. User levels can be protected by a four-digit pass code allowing level access to module parameters to be assigned to different functional groups in a facility. Some groups may need more expert level access to certain parameters while other require read-only access. Critical modules can also be locked out entirely or set so only single control point has access.

Once module parameters are set remotely, the information is stored on the module so it may be moved to a different cell or frame without losing configuration. It does not require a System Control module for operation after configuration. A System Control module must be installed in each frame to be part of an AveNet or Ethernet network. The Remote/Local switch on each module must be set to **Remote** to change settings on a module remotely. PC control is available through a serial or Ethernet connection. Examples of remote control and networking Avenue frames together are given below.

Control Panels

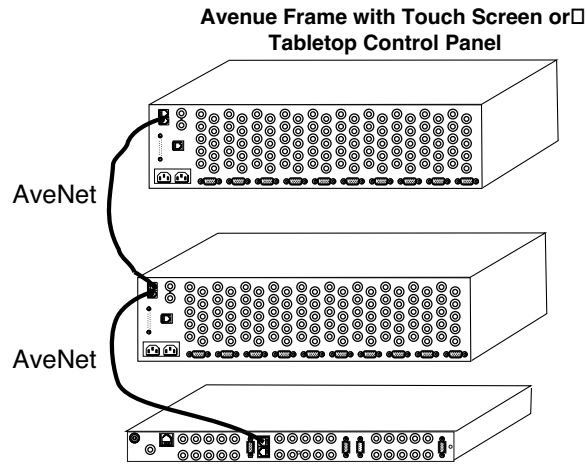
The Avenue Touch Screen Control Panel options include a standalone Tabletop Touch Screen Control panel and a Touch Screen installed in the front panel of the 3 RU frame door. The Touch Screen Panel provides a series of menus to name frames, modules, groups of frames and to configure module and system parameters. All remote control features can be controlled by a Touch Screen Panel.

The Express Panel shown below is a 1 RU control panel that is especially well suited for ingest areas and remote trucks. It has dedicated knobs for proc controls and a menu display for controlling all other parameters. All remote control features can be controlled by the Express Panel.



Avenue Express Panel

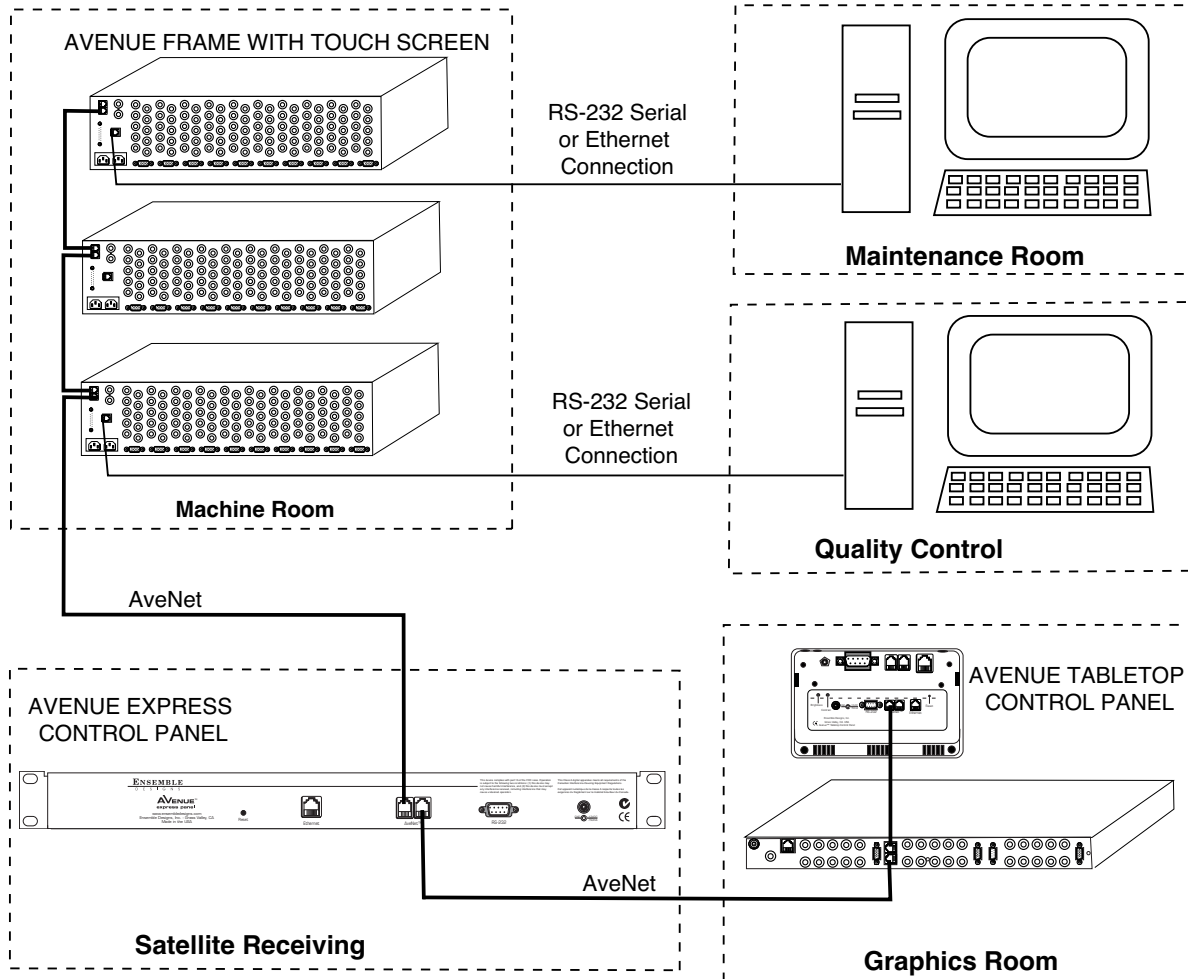
A single Touch Screen panel, Tabletop Control Panel, or Express Panel can control and configure one Avenue frame or as many as desired when each frame contains an optional 5030/35 System Control module and is connected to the AveNet bus as shown in the example below.



Avenue with Touch Screen Panel Controlling Three Frames

Avenue System Overview

In addition, any combination of control panels can be utilized with both 1 RU and 3 RU frames to suit the needs of any facility. Each frame or one frame in a group of frames can have an integrated control panel to control any of the frames on the AveNet. This versatility can be useful when control of frames installed in different rooms is desired as illustrated in the figure below.



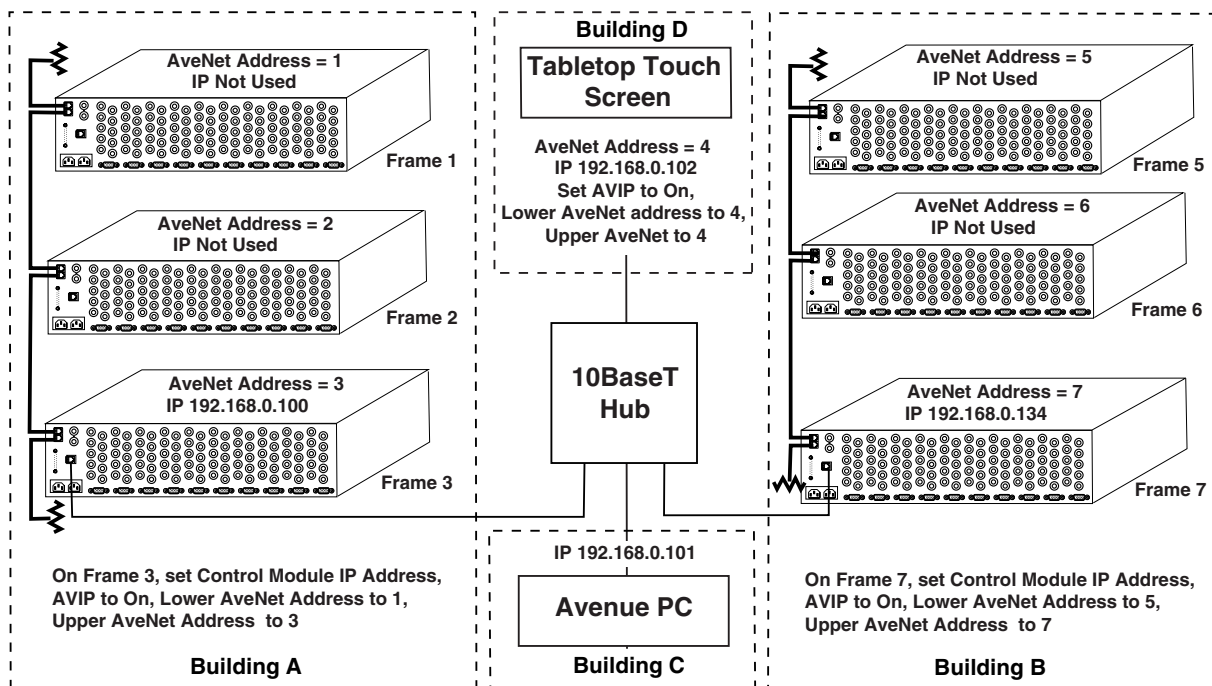
Avenue Touch Screens and Avenue PC Remote Control Applications

Large facilities with equipment installed in different locations or involving significant distances can use Ethernet as a communication medium. Groups of frames on independent AveNet networks can be linked through Ethernet using a feature called AveNet Over IP (AVIP). AVIP will coexist with other network traffic allowing you to utilize existing Ethernet networks.

The Ethernet topology used to interconnect the frame groups can be a star configuration using a hub as shown in the illustration below. Other Avenue control devices such as a PC running Avenue PC Application software and a standalone Tabletop Touch Screen can be connected to the hub to communicate with any of the Avenue devices. Alternately, when only two groups of frames need to be connected, an Ethernet crossover (or reversing) cable can be used as shown in the illustration on the following page. Other Avenue control devices can be connected to the AveNet bus, such as a Tabletop Control Panel, an Express Panel, or a Touch Screen Front Door in a frame.

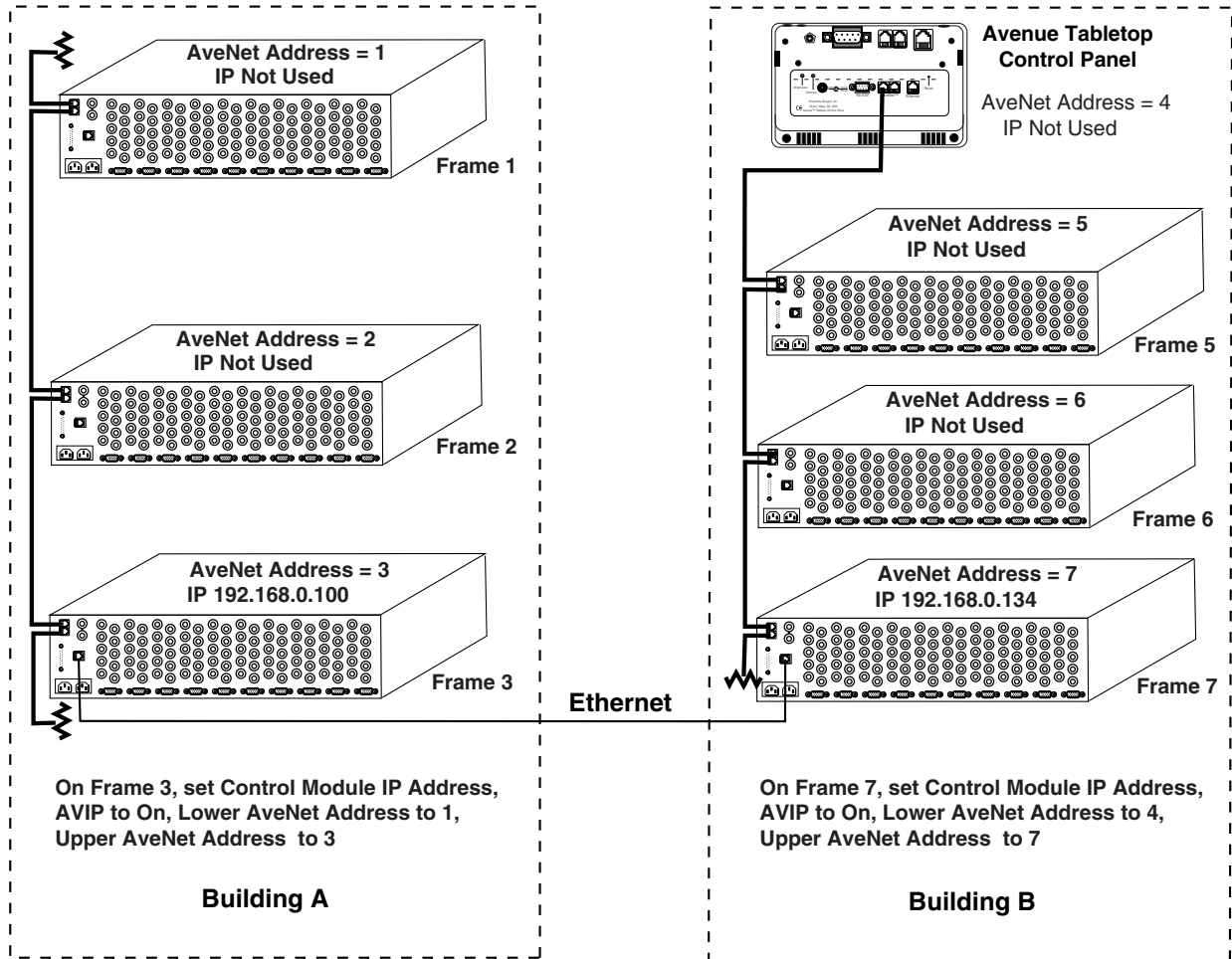
In each local AveNet network, a single frame is chosen to act as the AVIP connection point. The AVIP feature is enabled on the Control module installed in this frame using the module's local configuration controls or through a Touch Screen option if installed. This Control module is configured with a unique IP Address before being connected to the Ethernet network. The lower and upper AveNet addresses are identified in the Control module configuration to define the range of frames in the independent network.

This Control module will automatically identify other AVIP enabled Control modules on the network. Messages originating in one group will be forwarded over Ethernet to their destinations in another group.



AveNet Over IP in a Star Hub Configuration

Avenue System Overview



AveNet Over IP Direct Connection Using Crossover Cable

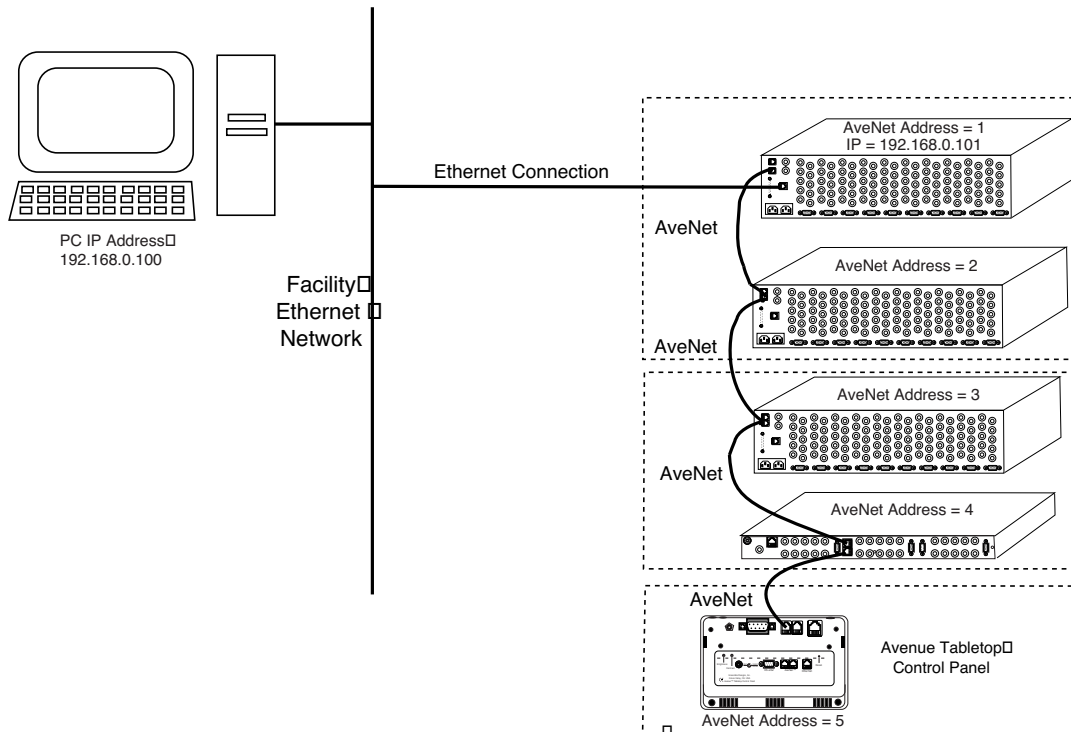
Avenue PC Application Software

The Avenue PC Application software can be installed on a PC running any Windows operating system. Avenue PC provides complete control of one or a group of Avenue frames through either RS-232 Serial control or via the facility Ethernet network. The PC application is a powerful and versatile interface allowing naming of frames modules and groups of frames. In addition, setting of all module parameters is possible from easy to read on-screen menus. Module configuration can be stored to a file and downloaded to a different module if desired.

Avenue PC also allows creation of “Virtual Modules”. Virtual Modules are custom menus that combine functionality from any modules in the system. A Virtual Module can include controls from several different modules present in your system such as an embedder, a video converter, and an audio delay module. Menus and parameter names can be grouped and customized to suit the needs of the user. A Virtual Module is authored with Avenue PC and exported (downloaded) to a control point server on the network.

A PC can be connected to one of the Avenue frames through a PC serial port to the Avenue serial port. Any number of frames can be controlled via the AveNet bus if a System Control module is installed in each frame. For facilities where frames may be located in different rooms, such as shown in the figure on the previous page, a PC running Avenue PC can be connected to a frame in each room and control any of the frames on the AveNet bus in either room.

The PC Application may be run on a PC connected to a facility Ethernet network as shown in the figure below. In this case, the Avenue Ethernet connector on one frame is connected to the Ethernet hub and the frame is assigned an IP Address on its System Control module. The frame may then be networked to other frames and stand alone Tabletop Touch Screen Control panels in other rooms (as noted by dotted lines in the illustration below) via AveNet.



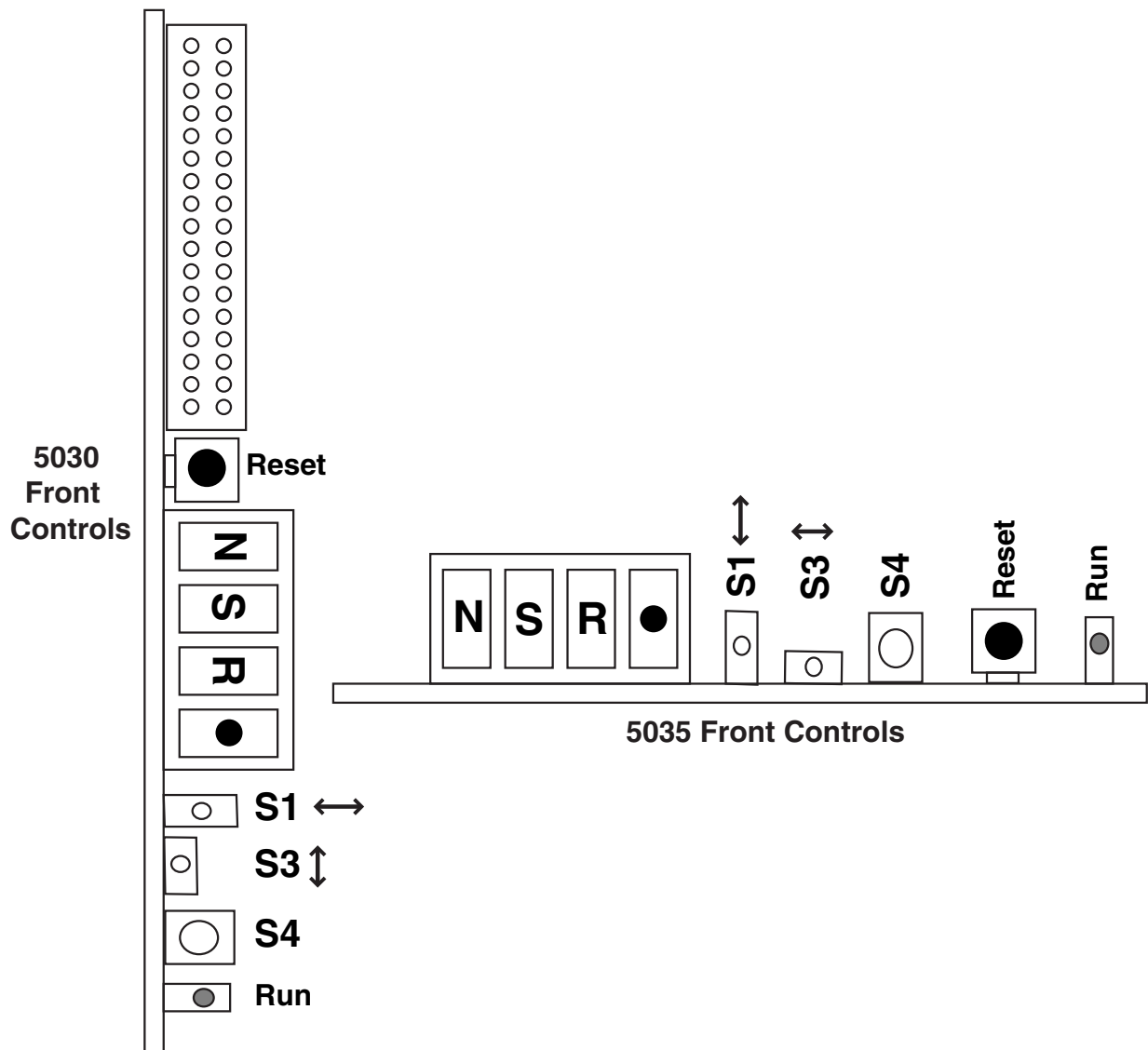
PC Application Control Through Ethernet

SETTING AVENET AND IP ADDRESSES

The AveNet and IP addresses of each frame must be set at the frame using either the Status menu functions on the front of the System Control Module in the frame or a Touch Screen Front panel installed in the frame (3 RU frame only). The Status menu display and the switches are shown in the illustration below.

The Status menu is used for various purposes. It acts continuously as a status indicator for showing system communication between the Avenue frame and external Ethernet, Serial, and External Reference connections. A series of menu functions can also be accessed through the Status menu as listed below:

- Display current software version running on this Control module
- View and change AveNet and IP Addresses
- Reset the Touch Screen Panel calibration to factory defaults. (Note this can also be done from the Touch Screen Panel.)
- Enable AVIP function and set lower and upper AveNet addresses in frame group.



5030 and 5035 System Control Module Status Controls

Use toggle switch **S3** to scroll through the menu selections. When you reach the desired selection, use toggle switch **S1** or **Enter (S4)** to access the menu. Set the desired parameters inside each menu selection with **S3**. Press **Enter (S4)** to finalize your selection. Note that using **S1** to access a menu allows you to read the assigned parameter and exit without changing it. If you use **Enter (S4)** to access a menu, you must set a parameter, then press **Enter (S4)** again to set the selection and leave the menu.

Refer to the Status Menu illustration on the following page for the menu parameters. To set or view the **AveNet** address, use **S3** to scroll to the **Adr** function. Use **S1** to enter the menu and read the current address. Use **S3** to change the address if desired. Press **Enter (S4)** to set the selection.

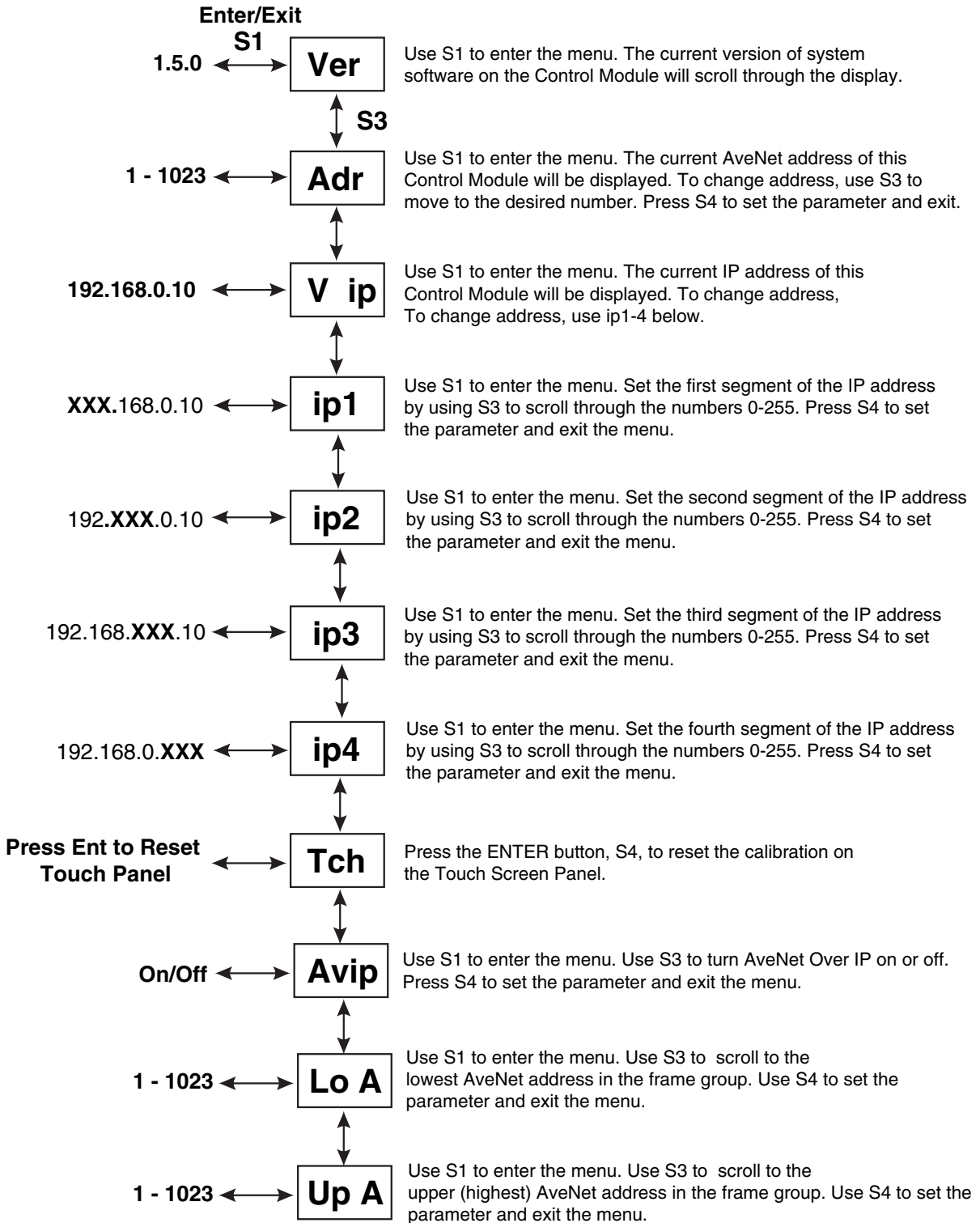
To view the current **IP Address**, use **S3** to scroll to **V ip**. Use **S1** to view the current IP Address. Access menu selections **ip1-4** with **S1** to view or change the four segments of the IP Address as required with **S3**. Press **Enter (S4)** to set each selection.

To enable the AveNet Over IP (**AVIP**) routing function, use **S3** to scroll to **AVIP** and use **S1** to enter the menu. Use **S3** to set the function to **On** or **Off**. Press **Enter (S4)** to set the selection.

Lo A and **Up A** parameters define the range of AveNet addresses in this independent network by identifying the lowest and highest AveNet addresses in the frame group.

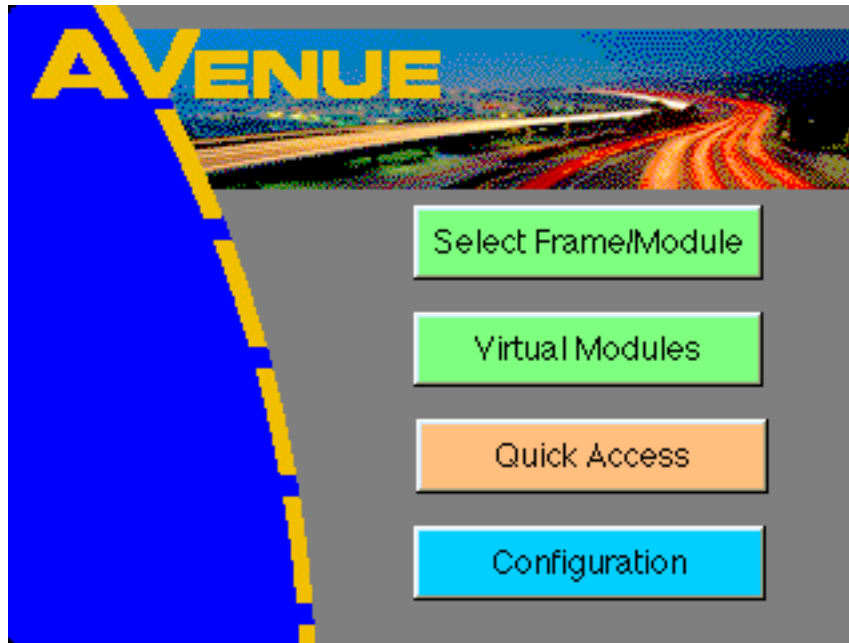
Scroll to the **Lo A** menu and enter the lowest numbered AveNet address in the AVIP frame group using **S3**. Press **Enter (S4)** to set the selection.

Scroll to the **Up A** menu and enter the highest numbered AveNet address in the Avip frame group using **S3**. Press **Enter (S4)** to set the selection.

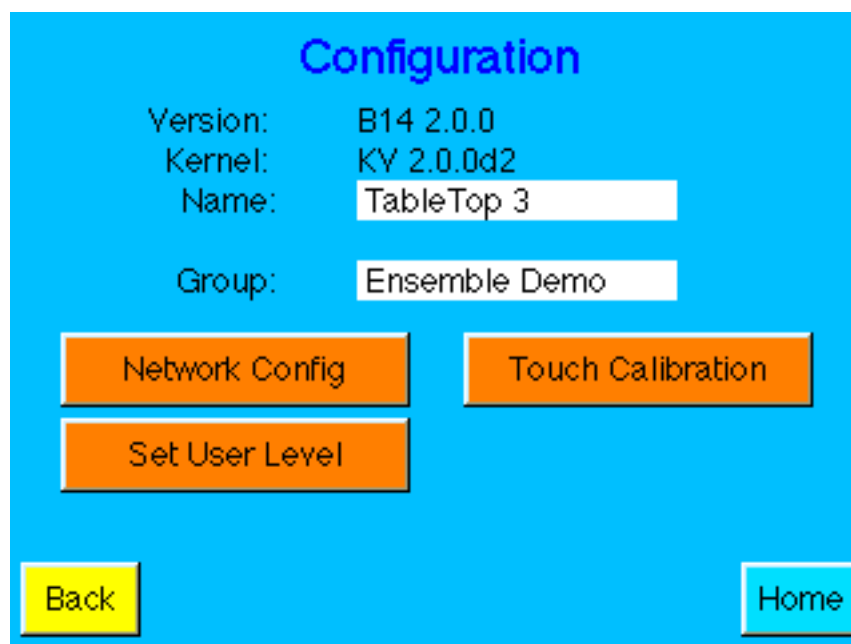


System Control Module Status Parameters

For 3 RU frames with a Touch Screen Front Door installed and on a Tabletop Control Panel, you may set or change the IP and AveNet addresses, enable and set parameters for AveNet Over IP and name the control Name and Group using the **Configuration Menu**. Select **Configuration** from the top level **Home** menu on the Touch Screen shown below.



The **Configuration Menu** shown below displays the local frame configuration information including the current software version and the Control name and group. Push the **Network Config** selection to bring up the networking menu. The **Touch Calibration** menu allows you to calibrate the Touch Screen and is explained in detail in the Touch Screen data pack.



Use the **Network Configuration** menu (shown below) to set the **AveNet** and **IP Addresses** for the frame.

Enable the **AveNet over IP Routing (AVIP)** function by pressing the **Enable** field. Enter the lowest numbered frame AveNet address in the frame group in the **Lower** field. Enter the highest numbered frame AveNet address in the frame group in the **Upper** field. Use the keypad explained below to enter the parameters.

The screenshot shows a blue interface titled "Network Configuration". It is divided into two columns: "AveNet" and "Internet".

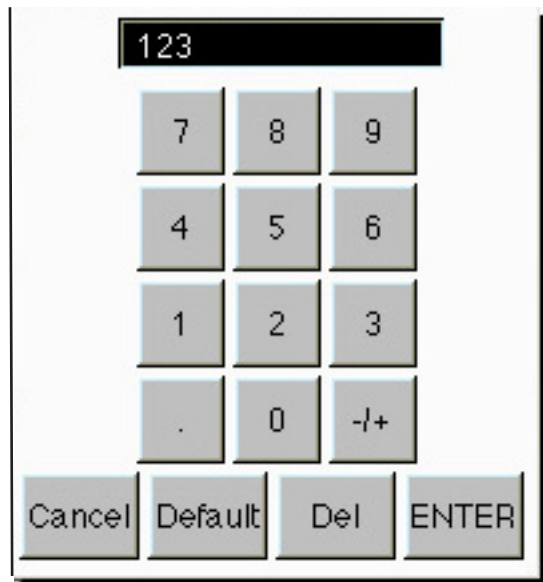
- AveNet:**
 - Address: 9
 - AveNet over IP Routing: Enable AVIP Off
 - Local Range: Lower: 1, Upper: 2
 - A yellow "Distant" button is located below the Lower field.
- Internet:**
 - IP Address: 192.168.0.107 (with a green checkmark)
 - SubNet Mask: 255.255.255.0
 - Gateway: 0.0.0.0 (with a red checkmark)

At the bottom, there is a "Module Selection / Navigation" section with "Module Type: Phys & Vir" and "Server Avenet Adr: 31". There are "Back" and "Home" buttons at the very bottom.

To set or change the parameters for the frame, push the number field to bring up the **Number Pad** as shown in the illustration below.

To change a value, use **Del** to backspace. Enter a value using the keyboard touch pad and press **ENTER** to finalize the selection. The **Number Pad** window will then close.

To cancel at any time and close the **Number Pad** window, press **Cancel**. The selection will remain unchanged. The **Default** selection is used when setting module parameters.



For large networks, such as a frame located in another city for example, it may be necessary to use the Distant IP feature in the Network Configuration menu to establish communications. Distant IP is used as follows when an IP address is outside the Local Subnet Mask:

- In the Gateway field, enter the IP address of your router to the distant network.
- Press the **Distant** button and enter the IP address of the targeted frame at distant locations into the **Distant IP** table that appears as shown below. The corresponding indicator in the table will turn green if a response is received from the distant frame.
- Avenue PC also uses this Distant table to locate distant frames on the network.

The default **Local Subnet Mask** is 255.255.255.000. This is the Class C mask which allows 256 local addresses. If the mask were 255.255.255.254.000, then 512 local addresses would be allowed. Anything not falling into this group would be Distant. The Gateway address is the IP address of the router which connects to the Distant network. Remember that all AveNet addresses must be unique over the entire network. The Distant feature can only be accessed from a Touch Screen door on the frame itself or from a Tabletop Control Panel.

| | | | | | |
|---|---------------|---|----|---------|---|
| 1 | 122.23.124.12 | ■ | 7 | 0.0.0.0 | ■ |
| 2 | 122.32.54.117 | ■ | 8 | 0.0.0.0 | ■ |
| 3 | 85.102.0.24 | ■ | 9 | 0.0.0.0 | ■ |
| 4 | 0.0.0.0 | ■ | 10 | 0.0.0.0 | ■ |
| 5 | 0.0.0.0 | ■ | 11 | 0.0.0.0 | ■ |
| 6 | 0.0.0.0 | ■ | 12 | 0.0.0.0 | ■ |

Back Home

The **Module Selection/Navigation** area of the Network Configuration menu provides the following two controls:

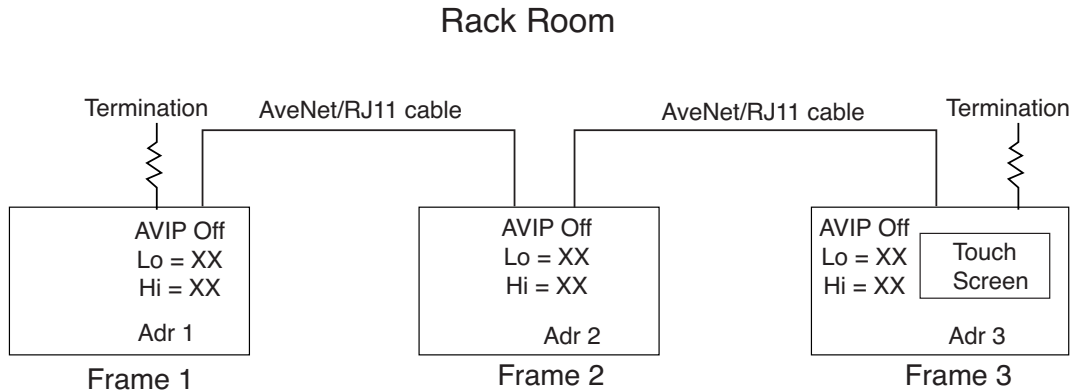
- **Module Type** – select the type of modules you wish to view in the Module list. Physical Only, Virtual Only, or both Physical and Virtual Modules can be shown in the Touch Screen module list. The Physical modules are those that are present in the networked frames. Virtual Modules are custom groups of menus and parameters based on Physical modules that can be created using the Avenue PC Application software as explained in the **CONTROL and OPERATION** section of this data pack.
- **Server AveNet Adr** – This is the AveNet number of the frame (Control module) that is assigned to act as the storage location for any Virtual Modules created with the Avenue PC software application as described later in the **CONTROL and OPERATION** section of this data pack. Any frame (Control module) communicating with the Avenue PC application can be used as the Virtual Module server. This control does not need a value if no Virtual Modules are being used.

Summary of Avenue Addressing

Three examples of addressing are presented here showing different networking configurations.

Example 1 – AveNet Interconnection Only

Consider three Avenue frames in a facility Rack Room which we wish to have communicate with each other in Example 1 described and shown in the figure below:

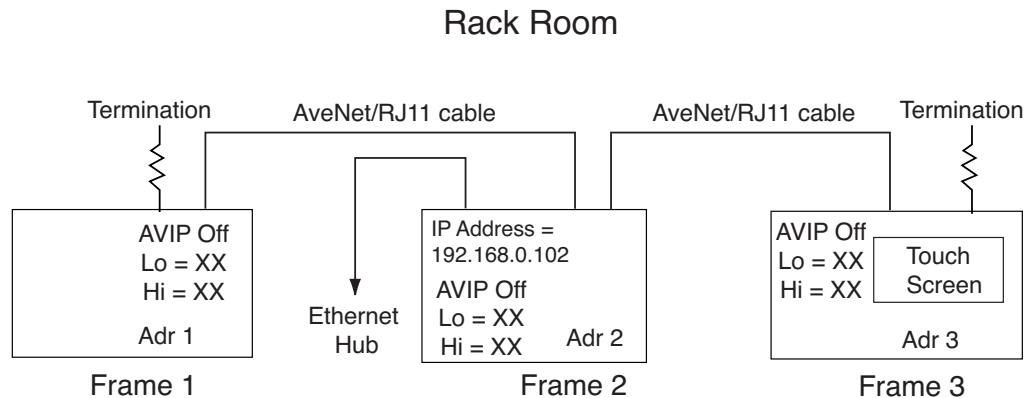


On the 5030 Control module of the first frame we will set the AveNet Address (Adr) to 1. The second frame will be set to Adr 2 and the third frame to Adr 3. Note that each Avenue frame or Tabletop Touch Screen must have a unique AveNet Address. Frame 1 is connected to Frame 2 via AveNet cable which has an RJ11 connector at each end (standard 4-wire telephone cable). From the second RJ11 jack on Frame 2 we connect another RJ11 cable to Frame 3. A 100 ohm termination is plugged into the unused RJ11 jacks of Frame 1 and Frame 3 to properly terminate the cable at each end.

In this example we have a Touch Screen door on Frame 3. Communication takes place with no further network settings or adjustments. When the Select Frame/Module button is pressed on the Touch Screen the 5030 Control module in Frame 3 sends a query along the RJ11 cable and the connected frames respond with information about their installed modules. The installation is complete.

Example 2 – Adding Ethernet Computer Connection

Let us now connect Frame 2 to an Ethernet hub with a cable connected to the RJ45 Ethernet connector on this frame as shown in the Example 2 figure below. On the 5030 Control module of this frame we now set an IP address, such as 192.168.0.102. With a PC connected to another port of the hub we will run the Avenue PC application. The IP address of Frame 2 is set into Avenue PC program and we now have control and monitoring of the Avenue system with the PC as well as with the Touch Screen.



Avenue Addressing – Example 2

Example 3 – System with AveNet and AVIP Interconnection

Expanding our Avenue system we will add an Avenue frame in Master Control and three more Avenue frames in Production Control. Refer to the Example 3 figure on the next page.

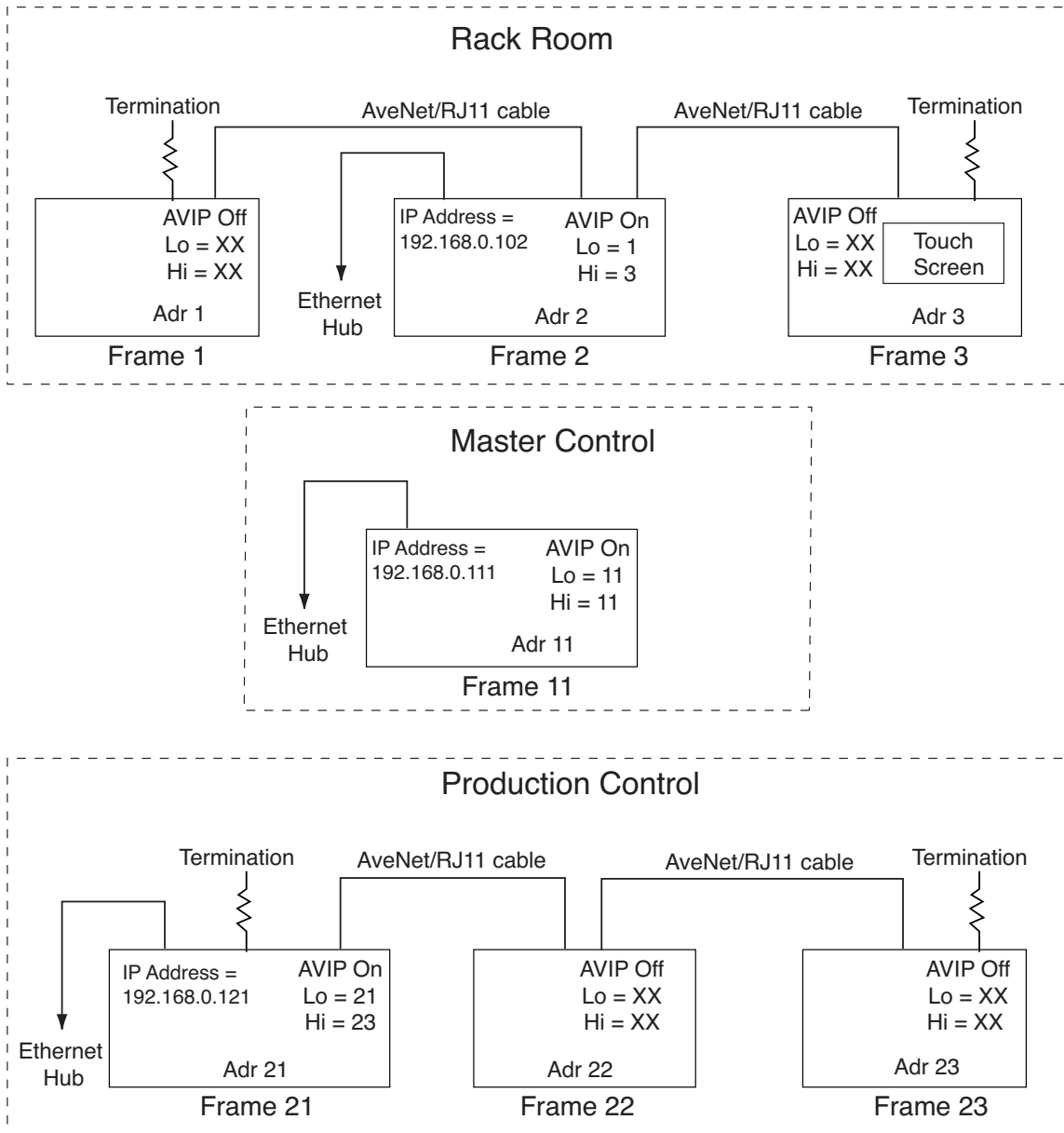
Let's set the Master Control frame to Adr 11 and the Production Control frames to Adr 21, Adr 22 and Adr 23. We could link all frames together with the RJ11 AveNet cable, terminating at the two ends, and the system would function just as before.

However, we have an Ethernet port available in each location and prefer to use this method of interconnection. To do this we will utilize AVIP, or "AveNet over IP". This allows a frame to send AveNet information out over the RJ45 ethernet cable and to receive it via this same path. On the 5030 Control module of each frame with an RJ45 ethernet connection, AVIP is turned On. Each frame with an ethernet connection is also given a unique IP address. The AveNet information generated by the Avenue system is now carried between the 3 frame groups via the RJ45 ethernet cable, and distributed to the frames in each group by RJ11 AveNet cable.

We must now set Hi and Lo addresses on each of the frames with ethernet connections so this frame will recognize all frames in its group and be able to pass communications on to them. On Frame 2 in the Rack Room group, which is connected to the ethernet, we set Lo to 1 and Hi to 3. This allows Frame 2 to know that any communications addressed to Adr 1, Adr 2 or Adr 3 is to be used by this group. Communications with other addresses will be ignored, as they are intended for other groups.

In Master Control we have Frame 11 with an RJ45 ethernet connection. Lo and Hi are both set to 11 as this is the only address to be concerned with. In Production Control, we connect Frame 21's RJ45 connector to the ethernet. Here Lo is set to 21 and Hi to 23. This informs the 5030 Control module in Frame 21 that it is responsible to handle communications for addresses between 21 and 23. The system is now operational.

If Tabletop Touch Screens are used they are handled and connected exactly the same as Avenue frames. The only difference is that addresses are set from the Tabletop's own Touch Screen, rather than the Control module.



Avenue Addressing – Example 3

AVENUE SECURITY OVERVIEW

The Avenue system offers a number of security features, from limiting access to individual module parameters to the ability to completely lock out a module or dedicate control of a module from one specific control point. This section provides an overview of the available security features.

Avenue offers several types of remote control devices for accessing frame modules: the Avenue Touch Screen in a Tabletop Control Panel or installed in the front of a 3 RU frame, the Express Panel, and the Avenue PC Application software installed on a networked PC. These devices act as control points for all networked frames.

There are two types of remote control security: User Levels and Module Lock.

User Levels

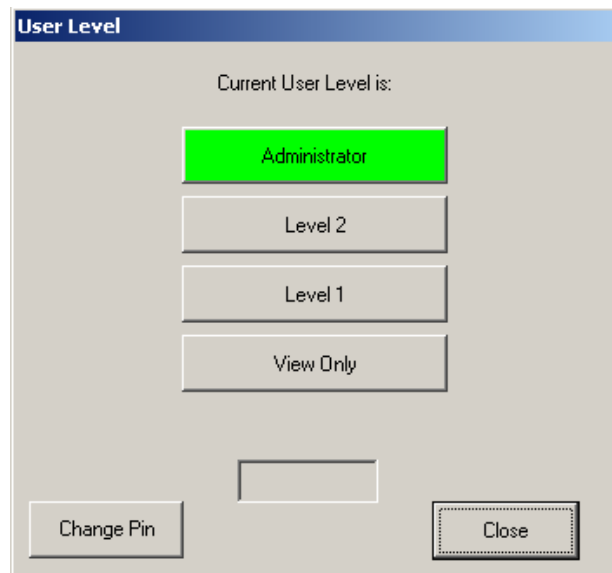
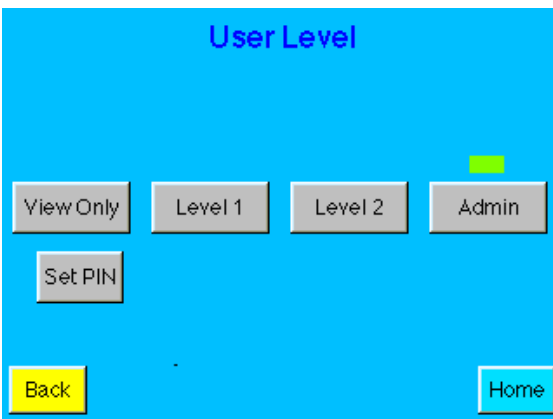
Every Avenue module running software version 2.0 and later has a User Level assigned to every control parameter. These User Levels are assigned in software at the factory and may be changed using Avenue PC if desired by a user with Administrator access. User Levels for each parameter are listed in the specific module data pack parameter table and in the **Edit Module User Level** menu in the **Module** pulldown in Avenue PC.

There are four User Levels, **Admin**, **Level 1**, **Level 2**, and **View Only**. User Levels are defined to allow limited access to some parameters that may be in a critical path or need to be locked out to some users. This allows limiting changing of some parameters while permitting view only status and allowing other parameters to be changed.

Access to each User Level through the Touch Screen is done by selecting the **Set User Level** button in the **Configuration** menu which brings up the **User Level** menu screen (shown at left below).

The same function is also available from Avenue PC in the User Level control in the File pulldown (shown below at right).

Any User Level can be protected by setting a 4-digit Pin number for each level by a user with Administrator privileges.



For example, a user given Level 1 access can log onto the control point (Touch Screen or Avenue PC) and have control over all parameters at Level 1. All inaccessible levels will be viewable but grayed out. When a user tries to access a parameter they do not have permission for, a message will pop up reporting that access is denied at this level.

The same is true for Avenue PC operation. When a parameter is not accessible from the current level, the parameter in the module screen will be grayed out.

Specific instructions for setting User Levels with the Touch Screen are explained later in this data pack in the **Touch Screen Configuration** section. Refer to the Avenue PC data pack for specific instructions on setting User Levels with the application.

Module Lock

Modules can also be locked out entirely or set so that only a single control point has access to changing parameters. Each Avenue module running software version 2.0 and later also has this module lock function. The module lock function operates in one of three modes:

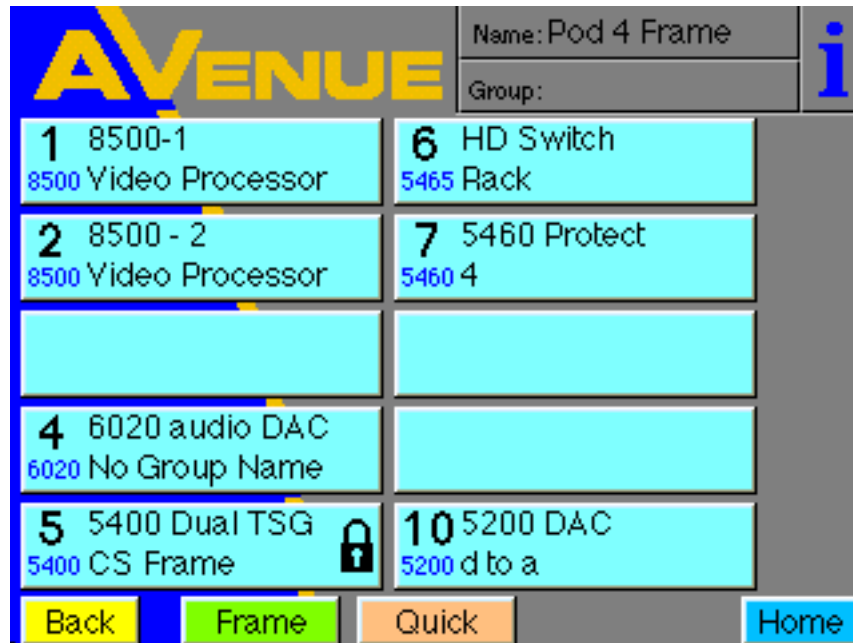
1. Module access is open to all control points (except for individual parameter level User Level access).
2. Module is locked completely to all changes (regardless of User Levels set for each parameter).
3. Module access is locked to only one control point on the network (all other control points do not have access). This module must be locked directly from the specific control point.

Modules can only be locked by a user with Administrator privileges. Access to module locking is available from any networked Avenue PC Touch Screen (in a frame front or TableTop) or the Avenue PC application on a PC connected to the same network.

Locking modules using the Touch Screen and Avenue PC is summarized below.

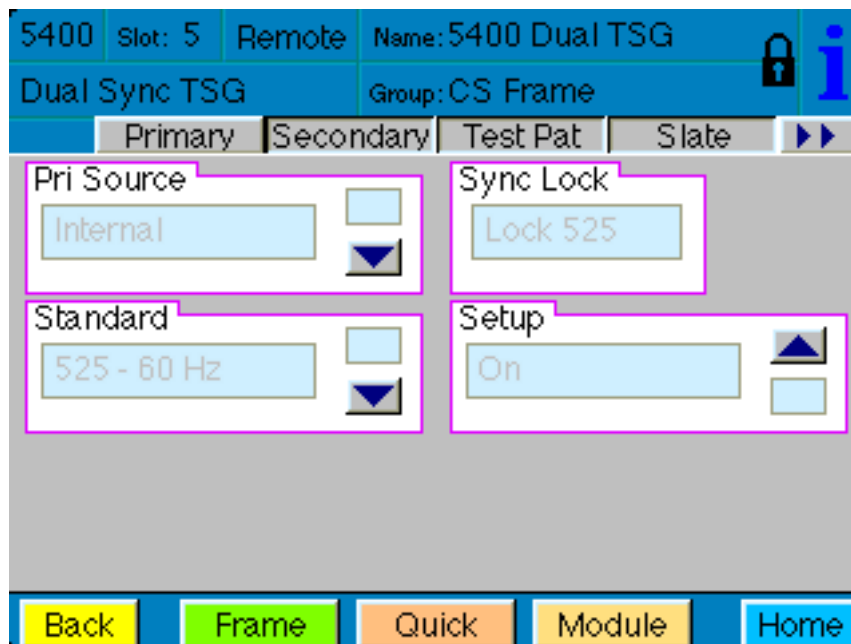
Avenue Touch Screen:

From a Touch Screen, If a module has been locked, it will appear with a lock symbol in the Touch Screen Frame List as shown in the example for the 5400 Sync Pulse and Test Signal Generator module in the figure below.



Select the module on the Touch Screen Frame List shown above to bring up the main module screen. Note the module lock symbol will also be shown in the upper right corner. All parameters will be grayed out and inaccessible. Selecting a parameter field will bring up the following message:

“This module is locked. You cannot make any control changes from this panel.”



If the user has Administrator privileges, they may access the Module Information screen shown below by pressing the “i” field at the top right of the previous screen. If a user without Administrator privileges attempts to access this view, the following message will pop up:

“User Level must be set to Admin to edit this parameter.”

In the Module Information screen the Administrator can determine if the module has been locked out from a specific control point by pressing the Mod Lock Status field. The module will either change to All Access or show the AveNet address of the locking control point device on the Avenue network.

AveNet addresses for each Touch Screen control point on the network are listed in the Frame List accessible by pressing the Select Frame/Module button on the Home menu page.

For information on modules locked with Avenue PC, refer to the next section.

The screenshot displays the 'Module Information' screen with the following data:

| Module Information | |
|--------------------------------|-------------------------|
| Model: 5400 | Function: Dual Sync TSG |
| Manufacturer: Ensemble Designs | |
| Name: 5400 Dual TSG | Mod Lock Status |
| Group: CS Frame | Locked |
| Located in Frame: | |
| Ser No: INFB1894 | Name: CS Frame |
| S/W Ver: v 2.0.0 | Group: Z Group |
| H/W Ver: 5400-0 | A NetAdr: 1 |
| 00:18:14:46 | Slot: 1 |

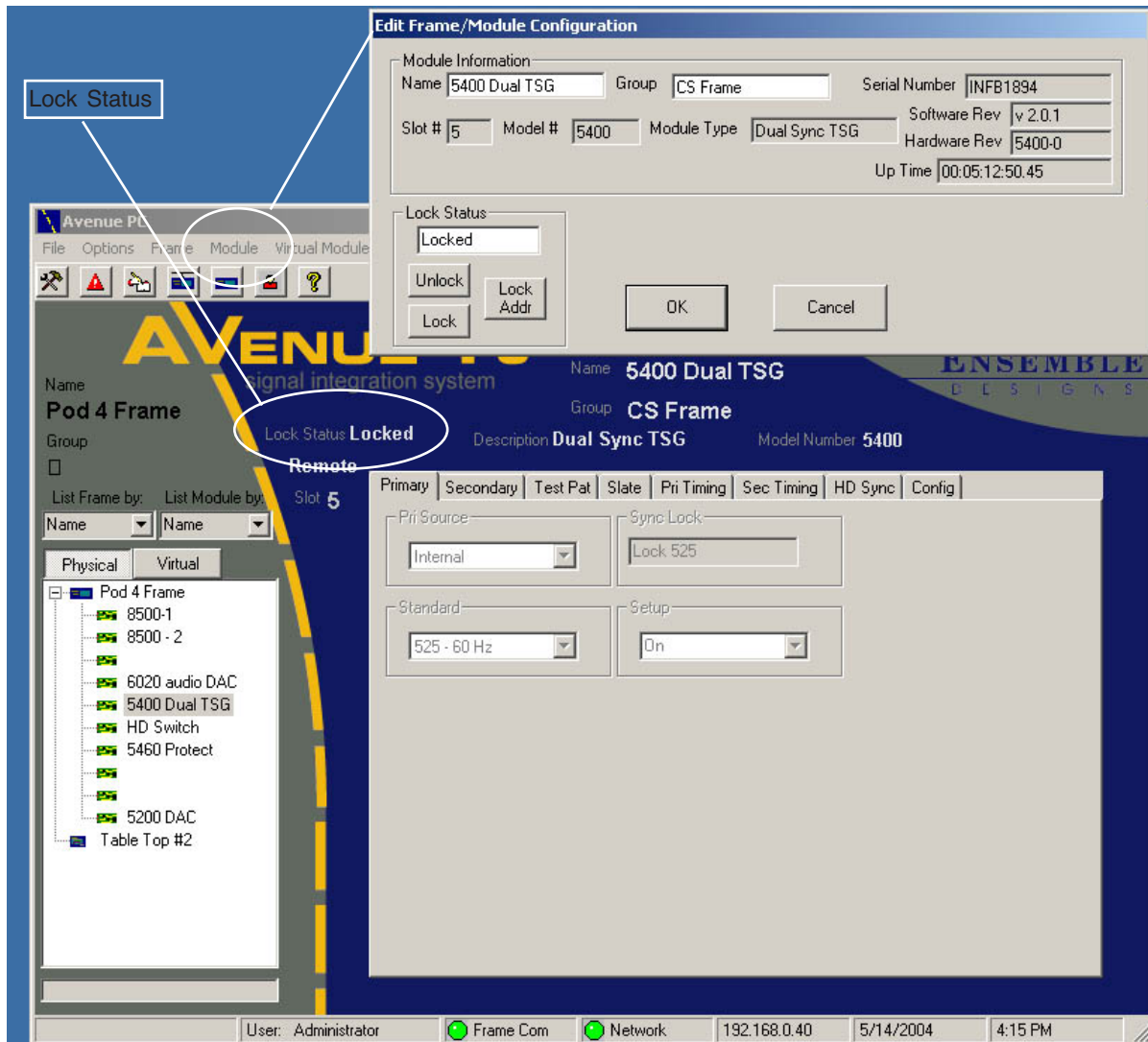
At the bottom of the screen are four buttons: Back (yellow), Select Frame (green), Connectors (grey), and Home (blue).

Avenue PC:

On Avenue PC, the same locked 5400 SPG / TSG module will appear as shown in the Main screen below. The status of the selected module in the Frame list will be reported in the Main Avenue PC screen in the Lock Status field circled below. The Lock Status will report **Locked**, **Unlocked**, or the AveNet address of another specific control point from which the module has been locked. Note that the **Module** pulldown is also grayed out, so changes cannot be made to this module configuration, unless an Admin user had logged in.

A user with Administrator privileges can log in to the User Levels on Avenue PC (select **File/Change User Levels**) and access the **Edit Frame/Module Configuration** screen shown above.

The Administrator user may now unlock the module by selecting the **Unlock** button. The module may now be locked by selecting the **Lock** button or locked to this specific control point by selecting the **Lock Adds** button.



The AveNet address of this PC is determined by the frame targeted in the **Preferences** pulldown under the **Communication** tab shown below. The IP address entered in the **Ip Address** field determines which Avenue frame is being targeted by this PC. Note that the AveNet address displayed in the **Virtual Module Server Avenet ID** field is not necessarily the AveNet address of the frame that this PC is targeting.

The screenshot shows the 'Preferences' dialog box with the 'Communication' tab selected. The 'Frame Comm' section has three radio buttons: 'Serial', 'Network' (which is selected), and 'Simulator'. Below this, there are four main sections: 'Serial Port' with a dropdown menu set to 'Com1' and a 'Re-Open Comm Port' button; 'Ip Address' with a text field containing '192.168.0.101' and a 'Re-Open Net Connection' button; 'Simulator file' with a text field containing 'sim4.sim' and a 'Select file' button; and 'Modem Port' with a dropdown menu set to 'Com4' and a 'Test Modem Port' button. At the bottom of the dialog, there are two checkboxes: 'Display Non Frame Devices' and 'Sort Frame Selection', both of which are unchecked. To the right of these checkboxes is a text field for 'Virtual Module Server Avenet ID' containing the number '3', and a dropdown menu set to 'Physical & Virtual'. At the very bottom of the dialog are 'OK' and 'Cancel' buttons.

Avenue System Overview

The AveNet address of the frame targeted by this PC can be found in the following locations:

- Under the **Frame** pulldown, select **Edit Configuration** to bring up the **Frame Configuration** screen. The AveNet address of the targeted frame is shown on the top right of the screen. In this example, the Avenet ID is 16.
- Another way to determine the AveNet address of the targeted frame is to list the frames by Address ID on the Mainscreen of Avenue PC. The targeted frame will appear at the top of the list identified by the AveNet IP address.

| Field | Value |
|------------------|-----------------|
| Frame Name | Ensemble |
| Frame Group | Demo Frame |
| Avenet ID | 1 |
| Software Version | 2.2.0N |
| IP address | 192.168.0.114 |
| Ker Version | KV 2.0.2b1 |
| Pwr Supply 1 | Not Installed |
| Pwr Supply 2 | Normal Function |
| Master Ref | No Reference |
| Cooling | Normal |
| Frame Temp | 45.0 |
| Fan Drive | 33 |
| GPI Input | Open |
| Ethernet | Link |
| AveNet/IP | Off |
| Lower Adr | 1 |
| Upper Adr | 2 |
| TCP Mismatch | 0 |

SNMP MONITORING

In System Software version 2.2.0, the Ensemble Designs Avenue Signal Integration System adds support for Simple Network Management Protocol (SNMP). This section provides an overview of this implementation.

Each Avenue device, the 3 RU Frame, the 1 RU Frame, and the Tabletop control panel all have 10Base-T Ethernet connectivity. In version 2.2.0, all of these devices gain SNMP support. All installed Avenue systems are eligible for upgrade to this version. Systems that are running pre-version 2.0 software require a special upgrade process to update both the operating software and the boot kernel.

The implementation follows SNMP Version 1.0 as defined in RFC 1157. It is future compatible to SNMP Version 2.0.

The intent of this implementation is to provide users with a straightforward means to query system elements for status and fault identification. Because the Avenue product line contains more than 60 different signal processing modules, the number of MIBs (Management Information Base) required to support each individually becomes difficult to manage – from both the development and user side. Instead, a single MIB has been developed. This MIB provides visibility of the status and condition of the Frame, and individually the status of each of the signal processing modules in the frame.

Each Avenue Frame which is to be viewed through the SNMP interface must have its own Ethernet connection and IP address. Configuration of that connection, the IP address, subnet mask, and gateway address is performed in the same manner as for other network connectivity.

The current version 2.2 software is released for a number of Avenue signal processing module and provides the functions listed in the SNMP Function Table on the next page.

For other modules, until such software is available, the SNMP implementation will provide some limited module status information. The module will report that it is one of the following:

- normal
- in kernel mode
- not installed

Traps are not supported.

Upgrading For SNMP Monitoring

The file **5030v220b1.msf** must be loaded into the 5030 or 5035 Control Module to institute SNMP communications. If you are already running 2.x.x software in the Control Module the software can be directly upgraded by using the Update Frame Software function in Avenue PC. For upgrade information, go to the Ensemble Designs web site at www.ensembledesigns.com.

SNMP Function Table

| Function | Indicator | Possible Values | Notes |
|---|-------------------------|-------------------------------------|--|
| cpu Func | CPU status | Normal, Kernel, Fail | – |
| powerSupply1 | Power status | Normal, Failed, Not Installed | – |
| powerSupply2 | Power status | Normal, Failed, Not Installed | 3 RU Frame only |
| cooling | Cooling status | Normal Failed | 3 RU Frame only |
| reference | Master Reference Status | Normal_525 Normal_625 None | – |
| For each of the signal processing slots (10 in the 3 RU frame, 3 in the 1 RU frame), these status points can be viewed: | | | |
| status | Module status | Normal Kernal Not Installed | – |
| signal | Signal status | Normal Faulted Unknown | This is a generalized indicator which reflects the input signals to a given module. It will indicated Faulted if any of the configured inputs to a module are missing. |
| reference | Reference status | Normal Faulted Unknown | – |

SECTION 5 – CONTROL AND OPERATION

Control of Avenue modules can be performed locally with the front module controls on each module or remotely using an Express Panel, an Avenue Touch Screen Tabletop Control Panel, or a panel installed in a 3 RU frame or from a networked PC with the Avenue PC Application software.

LOCAL OPERATION

Local operation for each module is covered in the individual data pack that ships with each module. Refer to this data pack for using the local controls.

AVENUE PC OPERATION

Remote control of Avenue frames and modules can be done with the Avenue PC Application software installed on a networked PC. All aspects of Avenue PC installation and operation are covered in the data pack that accompanies the software.

AVENUE EXPRESS PANEL MENUS AND OPERATION

Operation and configuration of the Avenue Express Control Panel is covered in the data pack that accompanies the option.

AVENUE TOUCH SCREEN PANEL MENUS AND OPERATION

Operation of the Avenue Touch Screen in the Tabletop model and installed in the Avenue frame is covered in this section.

Remote control features of the Avenue Touch Screens include the following:

- Easy adjustment of module parameters
- Customize module menus
- Set user levels for security
- Create quick keys for easy access to module settings and menus
- Lock-out modules for critical paths

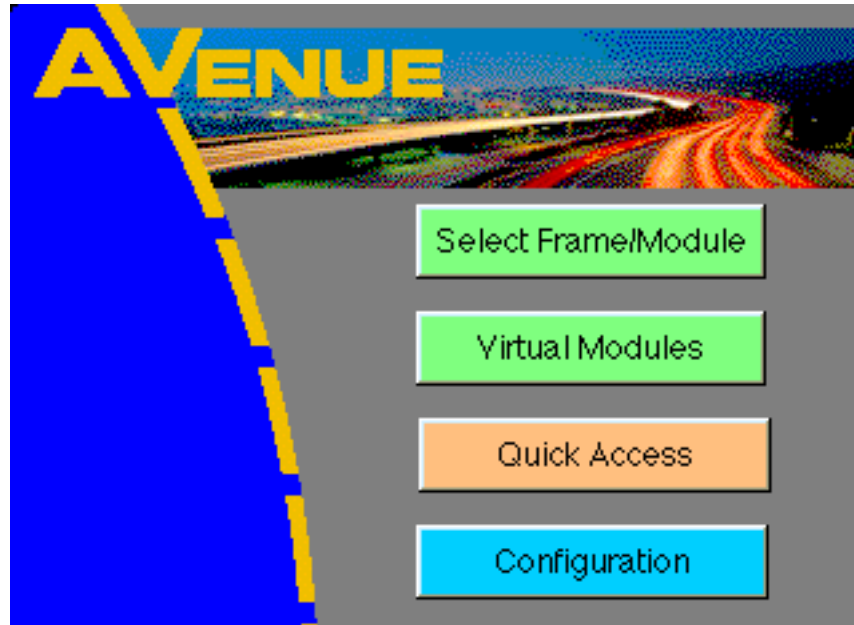
The Avenue Touch Screens provide a series of menu displays to allow you to set AveNet and IP addresses, enable AveNet Over IP (AVIP), name and monitor modules, frames and groups of frames, set user security levels, and set module parameters in the system. Each system menu display is illustrated and explained in this section. The menus available for each individual Avenue module are given in the data pack that comes with each module.

Home Menu

The top level **Home** menu is illustrated below. From this menu you can choose from the following:

- **Select Frame/Module**
- **Virtual Modules**
- **Quick Access**
- **Configuration**

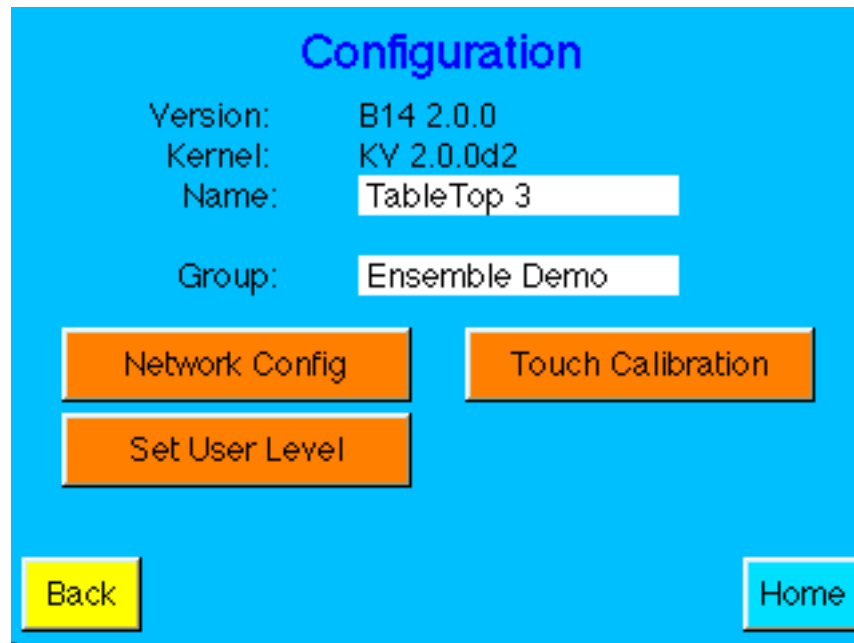
It is recommended to begin Avenue Touch Screen operation by calibrating the touch screen. Refer to the next section for instructions on calibration.



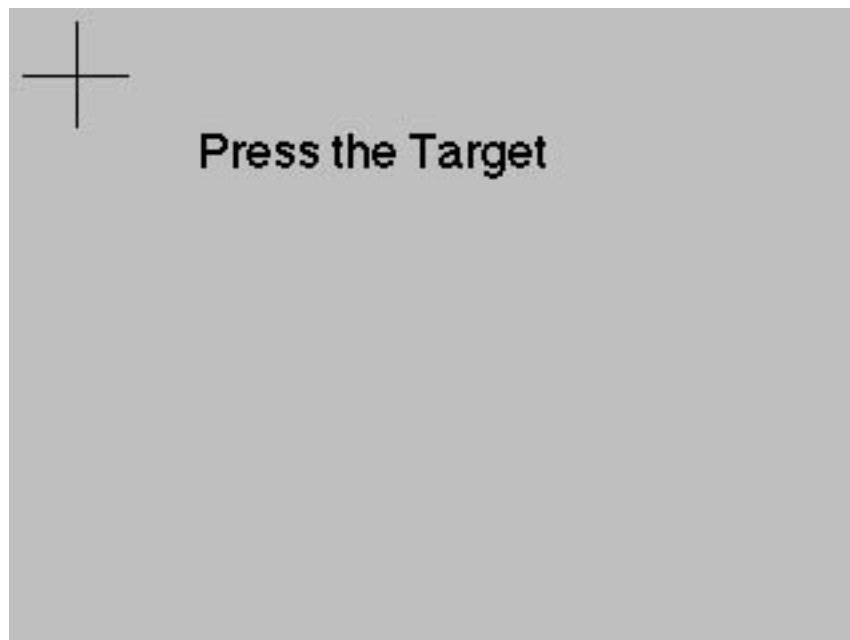
Touch Screen Calibration and Adjustment

A Touch Screen may be calibrated for touch sensitivity and adjusted for brightness and contrast.

To perform touch sensitivity calibration, push the **Configuration** selection on the **Home** menu to bring up the menu shown below.



Press the **Touch Calibration** button to bring up the calibration menus. The first **Touch Calibration** screen will appear as shown below. Press the target (+) in the upper left hand corner of the screen to perform the first calibration step. As you press the target, a purple dot will appear in the target area to indicate the calibration has been performed.

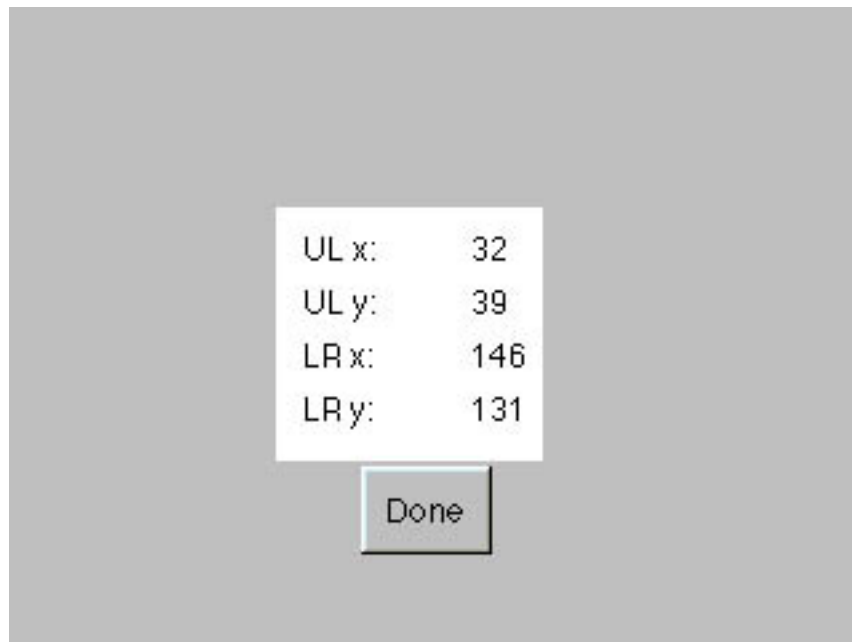


Avenue System Overview

The next calibration menu will appear as shown below. Press the target (+) in the lower right hand corner. The purple dot will appear in the target when calibration is complete.



This will bring up the **Done** screen shown below. Your calibration is complete. To check screen sensitivity calibration, touch the screen in various spots and the purple dot should appear to verify the screen response.

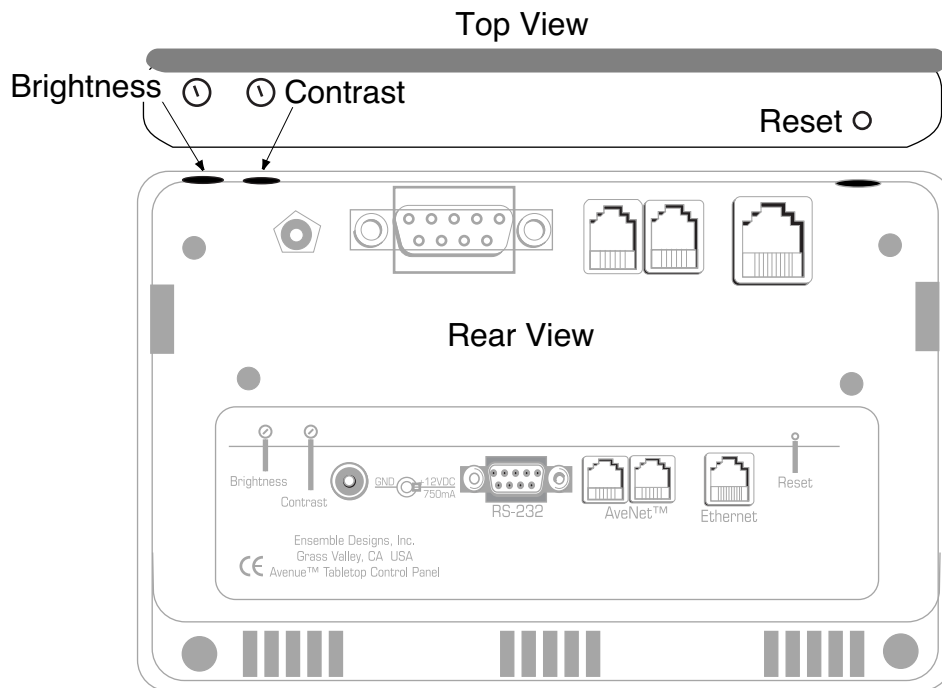


Press **Done** to return to the main **Configuration** menu. Select **Home** to return to the top level menu. If you experience problems with calibration or the Touch Screen does not seem to be working properly, refer to the **Avenue Touch Screen Troubleshooting** section at the end of this document for the reset procedure.

Potentiometer adjustments are also provided to set brightness and contrast of the Touch Screen. Locate the **Brightness** and **Contrast** potentiometers on the top left rear of the Touch Screen as shown in the illustration below.

To access the adjustments on the Touch Screen Front Door installed in the 3 RU frame, open the front door of the frame. The adjustments are located under the ribbon cable on the left side of the door.

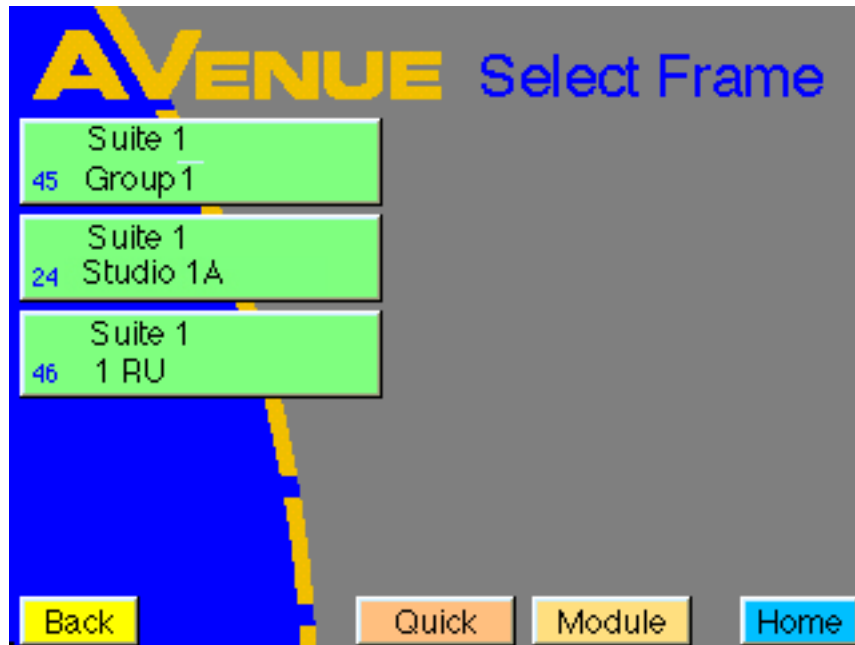
The **Reset** provided on the far right of the unit can be used when the Touch Screen cannot be calibrated for some reason or you need to perform a complete reset. Refer to the **Avenue Touch Screen Troubleshooting** section at the end of this section.



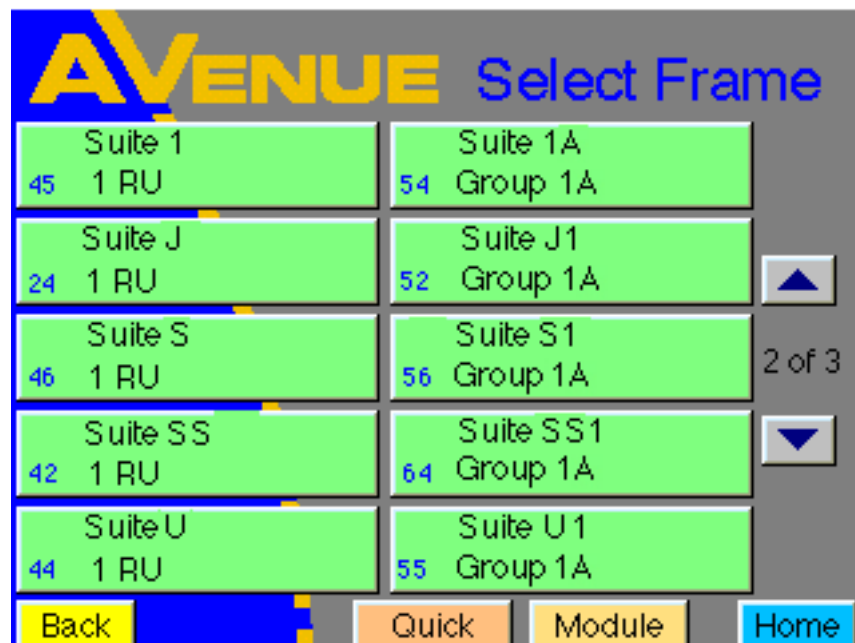
Touch Screen Brightness and Contrast Adjustments

Select Frame/Module Menu

From the **Home** menu, push the **Select Frame/Module** selection to access the frame and module information in the system. The menu will appear similar to the example below. The frames that are present on the network will appear with the name, group name and the AveNet address displayed for each frame. The **Quick** selection will bring up the quick access menu screen described later in this section. Pushing **Module** will bring up frame information about the first frame in the list. Use the **Back** button to go to the previous menu. Return to the top level menu by selecting **Home**.

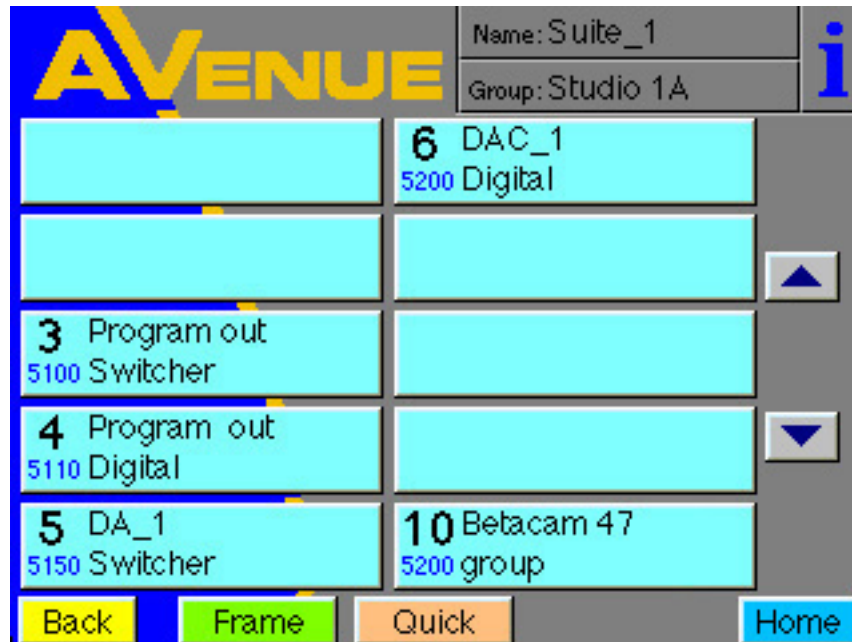


Information for up to ten frames will appear on one screen as shown below. If there are more than ten frames in the network (up to 1000 frames can be installed), you can scroll to the next screen with the **Up** arrow shown in the menu below. Move between screens with the **Up** and **Down** arrows.



To bring up information about a particular frame, including the list of modules installed, push the frame selection directly from the **Select Frame** menu. This menu shown below, will list each module in the frame by slot number, assigned module name, module type and group name.

This menu also provides a **Frame Controller Information** menu for the System Control module installed in the frame and other frame status items. Press the “i” in the upper right hand corner of the screen to bring up the **Frame Controller Information** menu.



The Frame Controller Information menu (shown below) provides information about the frame and allows you to name the frame name and frame group. Frame status will be reported for the following items in the Frame Controller Information menu:

- Software version
- IP Address
- Ker Version (kernel version of the operating system)
- Power Supply 1 (option) status
- Power Supply 2 status
- Master Reference
- Cooling (fan state)
- Frame Temp (in degrees centigrade)
- Fan Drive (percentage of fan speed being utilized)
- GPI Input (Open or Closed)
- Ethernet
- AveNet/IP (On or Off)
- Lower Adr (lowest AveNet address of frame in network)
- Upper Adr (highest AveNet address of frame in network)
- TCP Mismatch (factory use only)

Use the arrows on the right of the screen to scroll through the **Frame Status** items.

To enter or change a frame name or group name, press either the **Name** or **Group** field in the **Frame Controller Information** menu to bring up the alphanumeric keypad.

Use the keypad to enter the name desired. Names can be up to 15 characters, including spaces. For a capital letter, push the **SHIFT** key first then select the letter from the keyboard. Use the **DEL** key to backspace and clear the display.

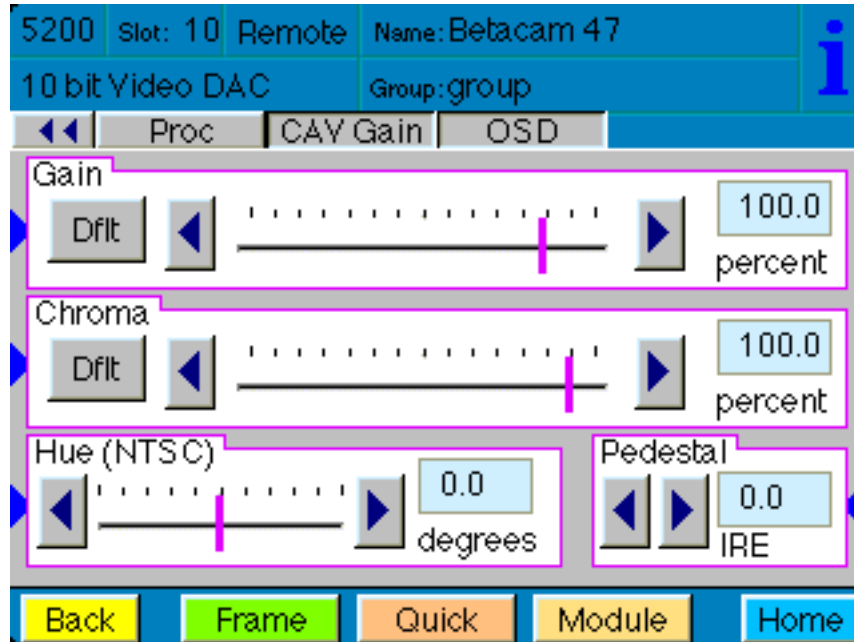
Press **Cancel** to return to the **Frame Controller Information** menu with no changes.

Press **ENTER** to finalize your selection and return to the frame or module information screen.

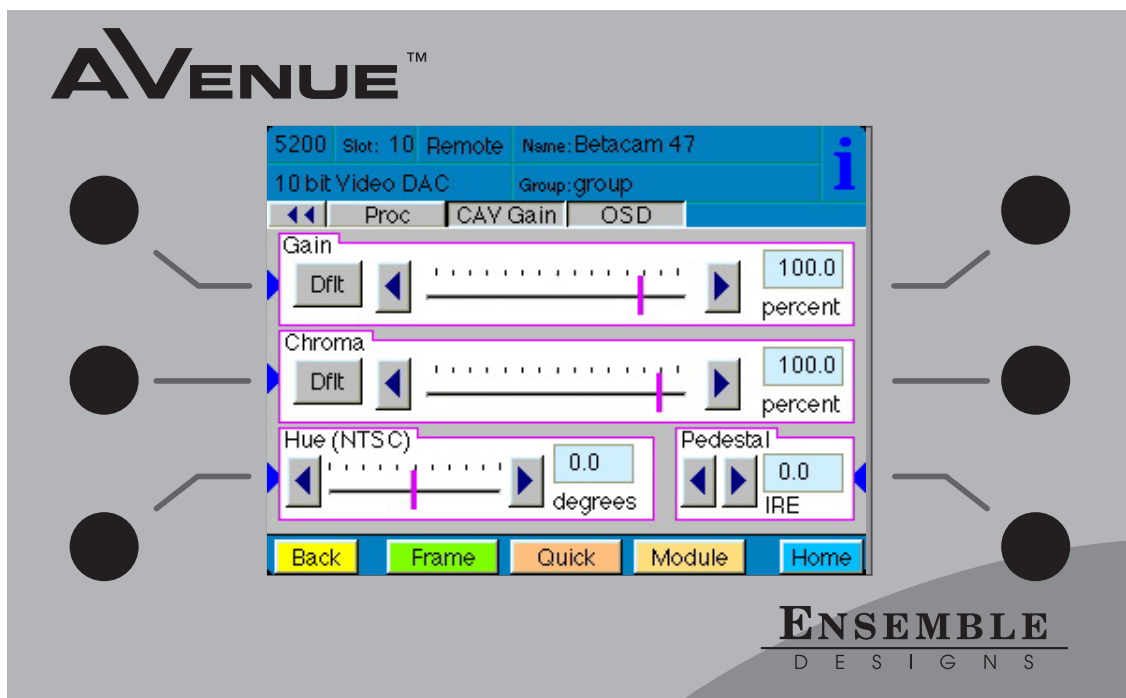
The screenshot displays the 'Frame Controller Information' menu. At the top, the title 'Frame Controller Information' is centered. Below it, there are three input fields: 'Name:' with the value 'Suite 1', 'Group:' with the value 'Group', and 'Address:' with the value '45'. A blue box highlights the 'Frame Status' section, which contains a list of system parameters and their values: 'Software Ver' (2.2.0N), 'Ip Address' (192.168.0.105), 'Ker Version' (KY 2.0.2b1), 'Pwr Supply 1' (Not Installed), 'Pwr Supply 2' (Normal Function), and 'Master Ref' (525 Reference). To the right of this list are two arrow buttons for scrolling. At the bottom of the screen, there are three buttons: 'Back' (yellow), 'Select Frame' (green), and 'Home' (blue).

| Parameter | Value |
|--------------|-----------------|
| Name | Suite 1 |
| Group | Group |
| Address | 45 |
| Software Ver | 2.2.0N |
| Ip Address | 192.168.0.105 |
| Ker Version | KY 2.0.2b1 |
| Pwr Supply 1 | Not Installed |
| Pwr Supply 2 | Normal Function |
| Master Ref | 525 Reference |

To access a module in the frame, select the module directly from the module list shown earlier. For example, pushing Module 10 in the module list will bring up the 5200 module menu shown in the figure below. These menus allow you to set module parameters from the Touch Screen. The menus for each type of module are illustrated and outlined in each individual module data pack.



When using a Tabletop Touch Screen Control Panel, module menu adjustments can also be made using the external knobs on the control panel. Module menus with this capability will appear with blue arrows on the sides of each menu to indicate that the parameter will also be set with the external controls as shown in the menu example below.



In either type of Touch Screen (Front Door or Tabletop), pressing any of the fields for setting numeric parameters will bring up the **Number Pad** shown earlier. Use the **Number Pad** to enter the parameter if desired. Press **Enter** to finalize the value. Press **Cancel** to close the screen with no changes. Or use the **Def** key to enter the parameter default value and close the screen. Note that when parameter defaults are reached, the slider bar will turn purple to indicate this.

Each module menu also provides access to a **Module Information** screen. Press the “i” in the upper right hand corner of any module menu screen. This will bring up the **Module Information** screen as shown in the example below. This menu gives pertinent information on the type of module installed, in this case, a 5400 module. This includes the Model number, Function, Manufacturer, Serial Number, Software version, Hardware version of the module in addition to its location in the frame.

Push the **Name** or **Group** selection directly to bring up the **Keyboard** menu shown earlier to change the name of the module or group.

For modules running software version 2.0 and later, a **Module Lock Status** selection is present for module lock functionality. A module can be put into one of three states:

1. **All Access** – module is open to all control points on the network (default).
2. **Locked** – module is locked out to all control points on the network.
3. **Adr#** – Control of the module is dedicated only to this specific control point. The Avenet address of this control point is displayed as an Avenet Address number (for example, Adr10). If another control point has dedicated control of this module already, its Avenet Address will be displayed. Dedicated control of a module can only be changed at a specific control point having Administrator privileges. (It can be changed from other Touch Screens or PCs.)

The screenshot shows a teal-colored screen titled "Module Information". It displays the following data:

| | |
|--------------------------------|-------------------------|
| Model: 5400 | Function: Dual Sync TSG |
| Manufacturer: Ensemble Designs | |
| Name: 5400 Dual TSG | Mod Lock Status |
| Group: CS Frame | Locked |
| Located in Frame: | |
| Ser No: INFB1894 | Name: CS Frame |
| S/W Ver: v 2.0.0 | Group: Z Group |
| H/W Ver: 5400-0 | ANetAdr: 1 |
| 00:18:14:46 | Slot: 1 |

At the bottom, there are four buttons: "Back" (yellow), "Select Frame" (green), "Connectors" (grey), and "Home" (blue).

Virtual Modules

Selecting the **Virtual Modules** button in the **Home** menu accesses any Virtual Modules located on the server selected in the Module Selection/Navigation area of the Network Configuration page explained later in this document. The Virtual Modules will be displayed in the same manner as Physical modules and all controls will be available for changing parameters.

Details of setting up and using Virtual Modules can be found in the Avenue PC Control Application Software manual.

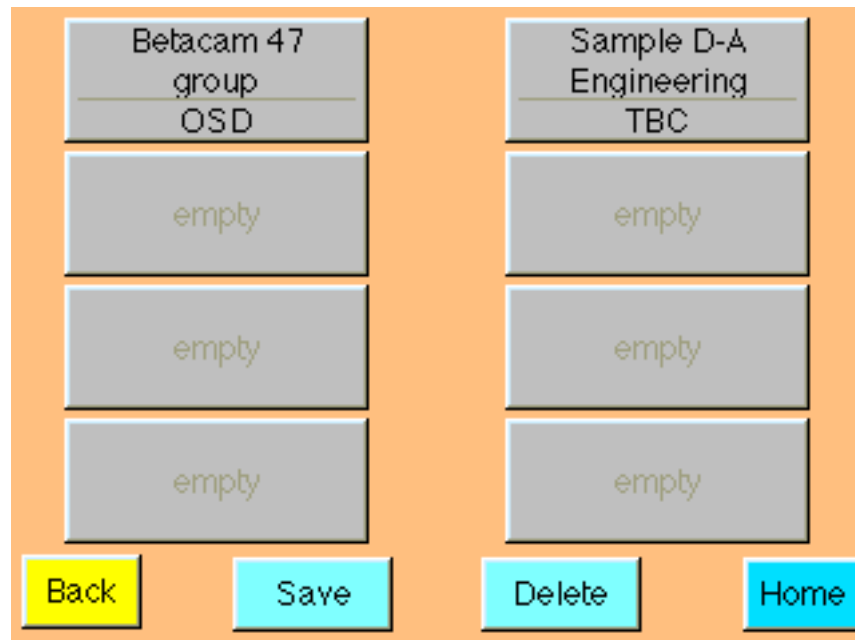
Quick Access

Selecting the **Quick Access** button in the **Home** menu accesses the quick access menu. This menu allows you to designate any module menu on the network for instant access without having to find the module and select the desired menu.

To designate a module menu for quick access, scroll to the menu you wish to assign in the module window. Press the **Quick** button at the bottom of the screen to bring up the menu below.

Press **Save** then one of the empty boxes. This will save the currently selected menu to that location and name the location by module name, group name and menu name. Going into the **Quick** menu from any frame or module location and pressing this assignment will bring up this menu instantly. This function is very useful for accessing frequently used menus.

To remove a menu, select **Delete** then select the box with the menu assigned.



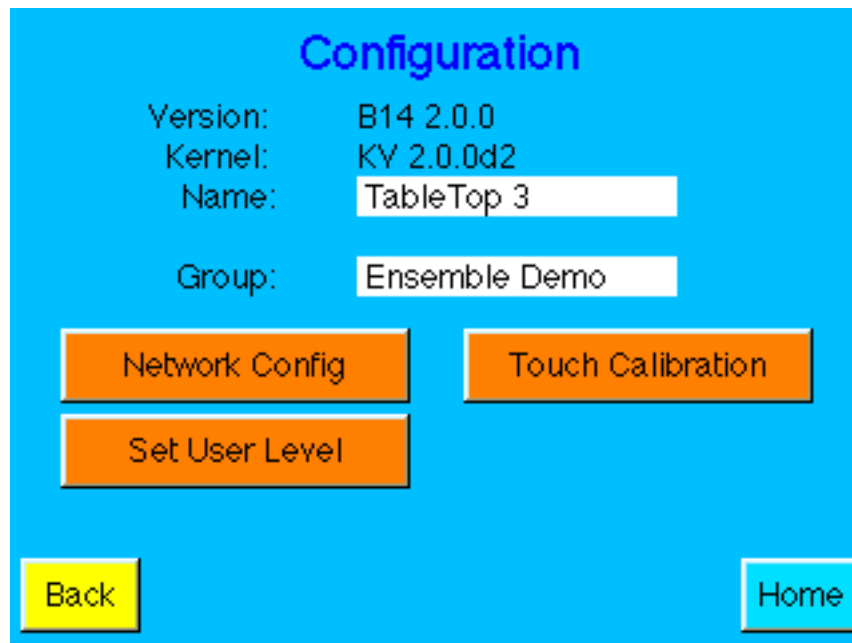
Configuration Menu

Selecting the **Configuration** button in the **Home** menu brings up the menu shown below, which displays the current software version and allows you to name the device and the group. It also provides access to the **Network Config**, **Set User Level**, and **Touch Calibration** menus.

To enter or change a device name or group name, press either the **Name** or **Group** field in the **Configuration Menu** to bring up an alphanumeric keyboard pad.

To change a name, use the **DEL** key to backspace and clear the display. Use the keyboard to enter the name desired. Names can be up to 15 characters, including spaces. For a capital letter, push the **SHIFT** key first then select the letter from the keyboard.

Press **ENTER** to finalize your selection and return to the **Configuration Menu**. Press **Cancel** to return to the **Configuration Menu** with no changes.



Network Config

Pressing the **Network Config** button in the **Configuration** menu brings up the Network Configuration menu (shown below) used to set the AveNet and IP Address for the frame. Refer to the Networking section of this data pack for information on setting the AveNet and IP Addressing.

Network Configuration

| AveNet | Internet |
|-------------------------------|-----------------------|
| Address: 9 | IP Address |
| AveNet over IP Routing | 192.168.0.107 |
| Enable AYIP Off | SubNet Mask |
| Local Range | 255.255.255.0 |
| Lower: 1 | Gateway |
| Upper: 2 | 0.0.0.0 |
| Module Selection / Navigation | |
| Module Type: Phys & Vir | Server Avenet Adr: 31 |
| Back | Home |

The **Module Selection/Navigation** section of the **Configuration** menu allows you to select what type of modules are going to be displayed on the module list for a frame. Two types of modules can exist in an Avenue frame.

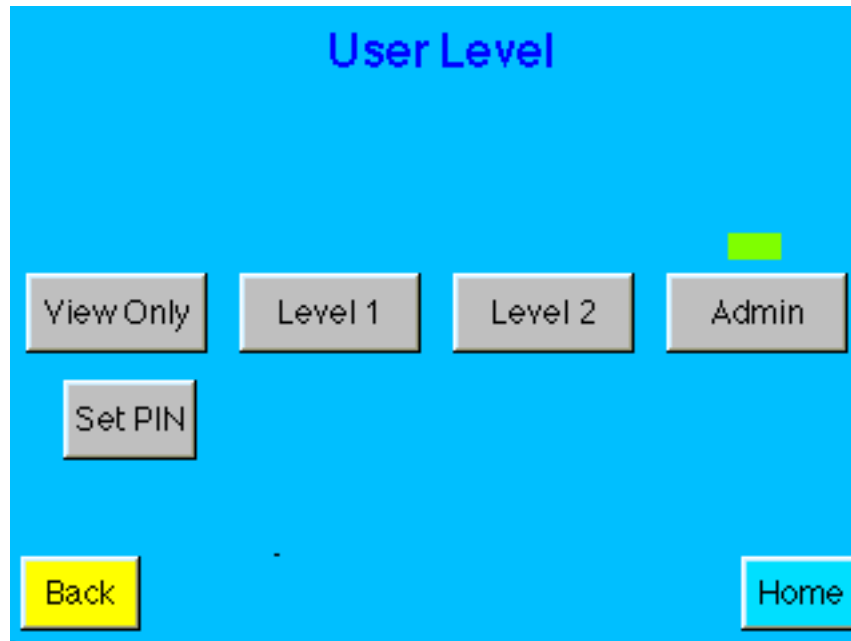
Physical modules are those Avenue modules that are installed in any of the accessible frames in the network. Virtual Modules are groups of custom menus created with the Avenue PC Software application from modules present in any Avenue frame on the network. These groups of menus combine functionality from any number of different modules. If Virtual Modules have been created with Avenue PC, you can choose to view only these custom modules by selecting **Virtual Only**. View only Physical modules by selecting **Physical Only**. Select **Phys & Vir** to view both Physical and Virtual Modules.

The Server AveNet Adr field should indicate (point to) the AveNet address of the frame which is acting as the server for storage of any Virtual Modules that have been created.

Set User Levels

Pressing the **Set User Levels** button in the **Configuration** menu brings up the User Level menu (shown below) used to set the security level of module parameter access.

A User Level is assigned to each adjustable control parameter. These levels are assigned to a default in software according to the type of adjustment and whether it is in a critical path. The user level for the parameter can be changed using the Avenue PC Application if desired. User Levels are different for each module type and are listed in the specific module data pack.



There are four user levels: **Admin**, **Level 1**, **Level 2**, and **View Only** (as shown in the screen shot above). User levels can be protected by a four-digit pass code allowing level access to be assigned to different functional groups in a facility. Some groups may need more expert level access to certain parameters while others require read-only access. Critical modules can also be locked out entirely or set so only a single control point has control access using the **Module Information** screen shown on page 46 or using Avenue PC.

To set a PIN pass code, select the **Set PIN** button in the User Level menu to bring up a keypad and enter a four-digit pass code.

To revert to operation without a PIN number, the Administrator may enter 0000 for the four digit pass code and a PIN will no longer be required for this User Level.

For a summary of User Levels, refer to the

Touch Calibration

Pressing the **Touch Calibration** button in the Configuration menu allows you to calibrate the Touch Screen explained earlier at the beginning of this section.

AVENUE TOUCH SCREEN TROUBLESHOOTING

If the Avenue Touch Screen seems unresponsive or you are unable to run the calibration procedure from the screen, you may reset the Touch Screen.

To run the reset procedure on a Touch Screen installed in a frame, open the front door of the frame and locate the 5030 Control module on the far right. A modified view of the module's front controls and menu structure is given below.

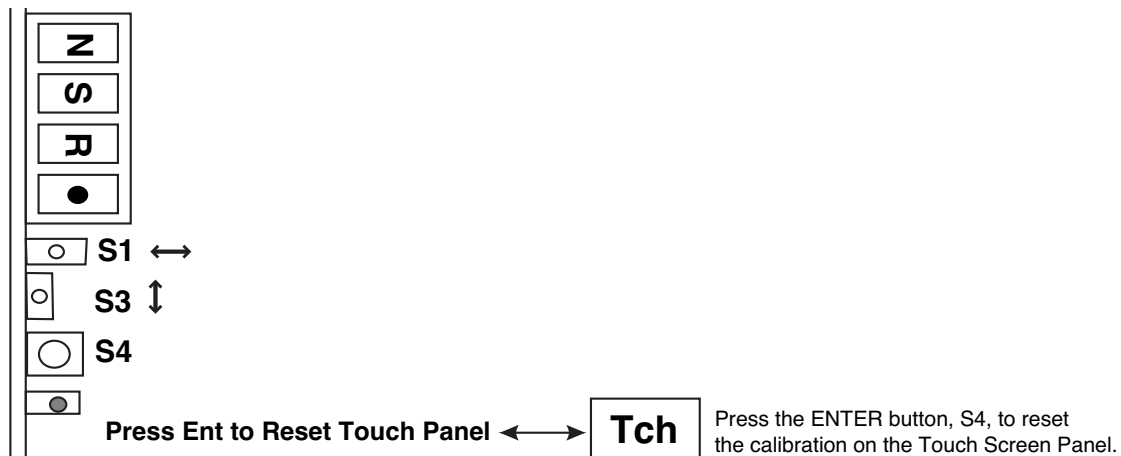
Use **S1** in the Status controls to enter and exit each of the menus available. Use **S3** to move between menus and to set the parameters inside each menu selection. Press **S4 (Enter)** to finalize your selection.

Use **S3** to scroll to the **Tch** function shown below. Enter the menu with **S1**, then, when instructed, press **S4 (Enter)** to reset the Touch Screen. The Touch Screen should now be in a factory default calibration mode.

Resetting the Tabletop Touch Screen will completely delete all information you have entered such as the IP and AveNet address and return it to a factory default condition.

To reset the Tabletop Touch Screen Control Panel, locate the recessed **Reset** button on the top right rear of the unit as shown earlier in the **Touch Screen Calibration and Adjustments** section at the beginning of this section. Press the **Reset** with a narrow tool and remove power to the unit by removing the in-line power connection of the back of the unit. Still holding the **Reset**, reapply power. The Touch Screen should now be in a factory default calibration mode. You will need to reassign IP and AveNet addresses from the **Configuration** menu as these have been cleared in the reset process.

Enter the **Configuration** menu and run the **Touch Calibration** procedure again. Reassign IP and AveNet address for the Tabletop Control Panel. Until this calibration procedure is run, the menu buttons registration may appear out of alignment.



Touch Screen Reset Procedure

SPECIFICATIONS

Avenue 1 RU Frame with 5010 Power Supply

Frame Dimensions:

| | |
|---------------------|-----------------------------|
| Height: | 1 RU, 1.75 inches / 44.5 mm |
| Width: | 19 inches / 482.6 mm |
| Depth | 13" / 330 mm |
| Weight (no modules) | 11.2 lbs / 5.1 kgs |

Avenue 3 RU Frame with 5020 Power Supply

Frame Dimensions:

| | |
|---------------------|------------------------------|
| Height: | 3 RU, 5.25 inches / 133.4 mm |
| Width: | 19 inches / 482.6 mm |
| Depth | 15.1" / 383.6 mm |
| Weight (no modules) | 26.5 lbs / 12.1 kgs |

5010/5020 Power Supply

| | |
|--------------------------------|---|
| AC Voltage Input: | 85-264 VAC |
| Line Frequency: | 47-63 Hz |
| Output Voltage: | +12 volts \pm 0.5 volt @ 8 Amps -12 volts \pm 0.5 volt @ 8 Amps |
| Protection: | Overvoltage, overcurrent and short circuit, overtemperature |
| Minimum Load: | 0% |
| Fusing: | 2 amp slo-blo on Line and Neutral |
| Efficiency: | 80% minimum |
| Ambient Operating Temperature: | 0 to 50 degrees C |
| Relative Humidity: | 0-95% Condensing |
| Safety Standards: | Protections Class: 1 Overvoltage Class: II Pollution Degree: 2 UL CAN/CSA-C22.2 No. 950-M89 TUV EN60950 TUV VDE0805 CE Low Voltage Directive CB Report per IEC 950 (1991) 2nd Edition, A1, A2, plus national deviations |

Due to ongoing product development, all specifications subject to change.

WARRANTY AND FACTORY SERVICE

Warranty

This equipment is covered by a five year limited warranty. If you require service (under warranty or not), please contact Ensemble Designs and ask for customer service before you return the unit. This will allow the service technician to provide any other suggestions for identifying the problem and recommend possible solutions.

Factory Service

If you return equipment for repair, please get a Return Material Authorization Number (RMA) from the factory first.

Ship the product and a written description of the problem to:

Ensemble Designs, Inc.

Attention: Customer Service RMA #####

870 Gold Flat Rd.

Nevada City, CA. 95959 USA

(530) 478-1830

Fax: (530) 478-1832

service@ensembledesigns.com

<http://www.ensembledesigns.com>

Be sure to put your RMA number on the outside of the box.