System Control Overview - 3G, HD, SD and Audio All In One Frame

Video and Audio Infrastructure

Avenue is a tray-based signal integration system housed in a 3RU or 1RU frame. Avenue allows you to populate any combination of 1.5 Gb/s HD, 3 Gb/s HD, SD, MPEG, analog video and audio processing modules in the same frame. It includes up/down conversion, embedding, synchronization, conversion, routing, noise reduction, protection switches, test signal generators and more. All modules are hot swappable and because of the universal backplane no special rear connectors are needed. The Avenue system is perfect for broadcast, mobile, satellite, cable, worship and post applications.

For facilities using both fiber and coaxial, Avenue provides a complete and simple solution. The Avenue Intersection frame is just 1RU and holds 10 optical modules. It can be used independently or tied to an Avenue 3RU frame.

Built-in networking lets you tie your 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 via the Internet. Comprehensive management and control is achieved by using any combination of Avenue Control Panels and/or Avenue PC software. Front edge or local controls are also available for each module.

Frame Control

Modules can be configured locally or controlled and configured remotely with the optional Avenue Control Panels or the Avenue PC Control Application Software. Both remote control options require a System Control module in each remotely controlled frame.

Local Frame Operation

Each Avenue frame can operate in stand-alone 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. The Remote/Local switch must be set to Local on each module for the on-board settings to be enabled.

Remote Frame Operation

Modules can be controlled and configured remotely using some or all of the optional remote control options: Avenue Touch Screens, Express Panel, Avenue PC Control Application Software and SNMP. Any number of frames may be linked together and controlled by a single control panel or a PC running the Avenue software. The number of control points is expandable to suit the needs of the facility. Our protocol is also available for interfacing to automation and other third-party control systems.

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 the network and the Remote/Local switch on each module must be set to Remote to change settings on a module. PC control is available through a serial or Ethernet connection.

Features

- Control and monitor all modules in the system from one or many locations—locally or worldwide
- Easily adjust video levels, timing, audio delay, and other parameters
- Customize module menus
- Alarm generation and log
- Download new module software—free for the life of the product!
- User Levels for security
- Module lockout for critical paths
- Use any combination of Control Panels and PCs for control and monitoring
- Avenue's user friendly protocol is available for interfacing to automation and other third-party control systems
- SNMP Monitoring and Control

System Control Modules: 5030/5035

When a System Control module is installed in each Avenue frame in the system, all frames can be connected together on a network. Frames can be daisy-chained together with AveNet (our proprietary Local Area Network communication), using simple twisted pair cable. Ethernet can be used instead of, or in conjunction with, AveNet.

Any combination of 3RU frames, 1RU frames, Intersection frames and Touch Screens can be used together on the network. The optional 5030 (3RU Frame) or 5035 (1RU Frame) System Control module provides the Serial, Ethernet and AveNet interface connections to an Avenue frame. The module is required for remotely controlling and configuring the frame modules from the Avenue remote control options which include the Touch Screen panels, Express Panel, and the Avenue PC Control Application Software. In addition, the System Control module provides the 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 reset function.

The 5030 System Control module installs in a dedicated cell to the right of the ten video and audio modules in a 3RU frame. It connects to the front door via a ribbon cable for controlling the Touch Screen Door, if installed. It interfaces to the frame backplane for controlling the serial communications port, the AveNet LAN connection between frames and the 10BaseT Ethernet TCP/IP connection. The 5035 System Control module installs in a dedicated cell to the right of the three video and audio modules in a 1RU frame. It interfaces to the frame backplane for controlling the serial communications port, the AveNet LAN connection between other frames and the 10BaseT Ethernet TCP/IP connection.

The Intersection frame includes a 5070 System Control Module that is installed in a dedicated cell in the intersection frame. The 5070 interfaces to the frame backplane for controlling the serial communications port, the AveNet LAN connection between other frames and the 10BaseT Ethernet TCP/IP connection.

Avenue Touch Screens

The Avenue Touch Screen options include a stand-alone Tabletop Touch Screen Control Panel and a Touch Screen installed in the front door of the 3RU frame. The Touch Screen menus provide the means to configure and monitor module and system parameters. All remote control features can be controlled by a Touch Screen. Each frame or one frame in a group of frames can have an integrated Touch Screen Door or Tabletop Control Panel to control any of the frames on the AveNet bus. This versatility can be useful when control of frames installed in different rooms is desired.

Avenue Express Panel

The Express Panel is a 1RU control panel for configuring and monitoring module and system parameters. It can be used instead of or in conjunction with Avenue Touch Screens and Avenue PC. It is particularly well suited for ingest and remote applications as it has dedicated knobs for proc adjustments.

System Control Overview

Avenue PC Software

Using Avenue PC Software, modules can be controlled and configured remotely. Any number of frames may be linked together and controlled by a PC running the Avenue software, even from remote locations via the Internet. The number of control points is expandable to suit the needs of the facility. Our protocol is also available for interfacing to automation and other third-party control systems.

Virtual Modules

You can create custom menus for Avenue PC and Touch Screens that combine functionality from any modules in the system. A custom menu could include controls from several different modules, such as an embedder module, a video converter module and an audio delay module. Alternately, a custom menu could include a subset of controls from one module. You can design module menus and parameters to suit your needs. Custom menus are authored using Avenue PC and downloaded to any control point on the network.

Alarms, User Levels and Software Updates

Alarms can be created using Avenue PC. The Alarm menu offers choices specific to the module or frame you want to monitor. For example, you can set an alarm for loss of reference to a particular module or for power failure in a particular frame. If an alarm occurs, you can choose to have a log entry generated, an alarm sound on your PC, an email sent out, or even a page sent. Email and pager choices require using the modem on your PC.

Touch Screens, the Express Panel, and Avenue PC have four user levels: Admin, Level1, Level2, and View Only. User levels can be protected by a four-digit pass code allowing level access to be assigned to different functional groups within your 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 access.

Free Software Updates

Software updates for modules are posted on the Ensemble Designs web site and are available to customers at no charge. After downloading the software, Avenue PC is used to upload the new software into a module. The latest version is always available to you.

Ethernet Topology and PC Control Using AVIP

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. A PC running Avenue PC Application software or an SNMP manager 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. Other Avenue control devices can be connected to the AveNet bus, such as a Tabletop Control 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.

SNMP

An SNMP manager, such as Statmon's Axess, can be used to monitor and control Avenue modules. The Avenue MIB provides detailed information about how the manager can interface with the modules. An SNMP client is built into the Avenue system Control module.

Typical Avenue System Using AVIP Over Ethernet for Control