AVENUE

Avenue™ signal integration system

Avenue™ Intersection Frame Data Pack

ENSEMBLE
D E S I G N S

Revision 3   SW 2.2.6

INTRODUCTION

This data pack provides detailed installation, configuration and operation information for the **Avenue Intersection Frame** as part of the Avenue Signal Control System.

The module information in this data pack is organized into the following sections:

- Frame Overview
- Frame Installation
- Intersection Configuration
- Warranty and Factory Service

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 no 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.

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.

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

AVENUE INTERSECTION FRAME OVERVIEW

The Avenue Intersection Frame is a compact, high-density, 1 RU unit that holds up to ten fiber optic I/O modules. The Avenue Frame can be integrated into an Avenue network or can be used as an independent optical product, depending on the application.

The front of the frame, shown in the illustration below, has LED status indication for power, input signal presence and laser fault. The rear of the frame has one ethernet connector and two AveNet connectors for the Avenue control interface.

Avenue Intersection Frame

Any combination of up to ten 3710 IS, 3720, 3750 and 3760 Electrical and Optical modules can be used in the Intersection frame. BNCs and SC optical connectors are on the modules, not on the frame. Modules plug into the frame from the rear.

The Intersection Frame has the following features:

- Use with Optical/Electrical Converter modules
- Optional System Control module provides AveNet and ethernet interface
- Use independently or tie to an Avenue 3RU frame for control
- SNMP monitoring
- Complete, integrated solution for using optical and electrical signals in the same facility
- Optional Redundant Power

The Avenue Intersection Frame has a System Control module that enables the frame to tie into the Avenue control system, just like any other Avenue frame or control surface.

The Avenue Intersection Frame appears as a frame device in the Avenue Control System. Control and status in the Intersection frame are presented to the user through the existing Avenue Control System, through Avenue PC or an Avenue Control Panel.

The Avenue Intersection Frame can also be matched to the modules in an Avenue 3RU Frame through the control system. This matching provides superior integration, allowing the customer to look at a signal path without concern for the use of both frames. For example, a signal might pass through an 8500 converter and frame sync and then through the 3710 electrical to optical converter. This signal could be viewed from one set of menus through Avenue PC or an Avenue Control Panel.

Redundant power is optional and there are two AC line connectors.

System Control Module   Power Supplies

Avenue Intersection–3
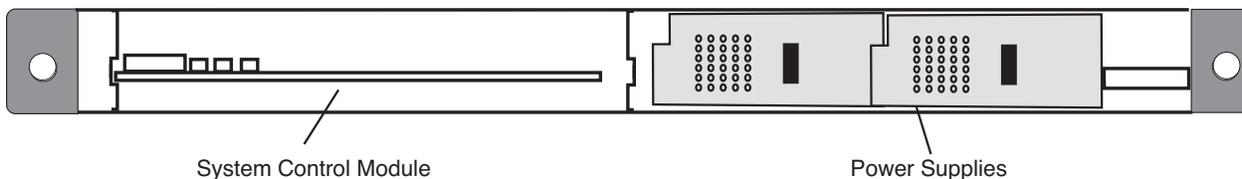
INTERSECTION FRAME NETWORKING

In the illustration below, an Avenue Intersection Frame is interfaced to a complete Avenue system via AveNet. Any number of Avenue frames, Touch Screens, and Tabletop or Express Control panels can be connected via AveNet using twisted pair cable. PCs connect to any frame via Ethernet.

AVENUE FRAME WITH TOUCH SCREEN

Ethernet
Connection

**Machine
Room**

Maintenance Room

Ethernet
Connection

AVENUE INTERSECTION
FRAME WITH OPTICAL MODULES

Quality Control

AveNet

AVENUE INTERSECTION
FRAME WITH OPTICAL MODULES

AVENUE TABLETOP
CONTROL PANEL

AveNet

Distribution

Graphics Room
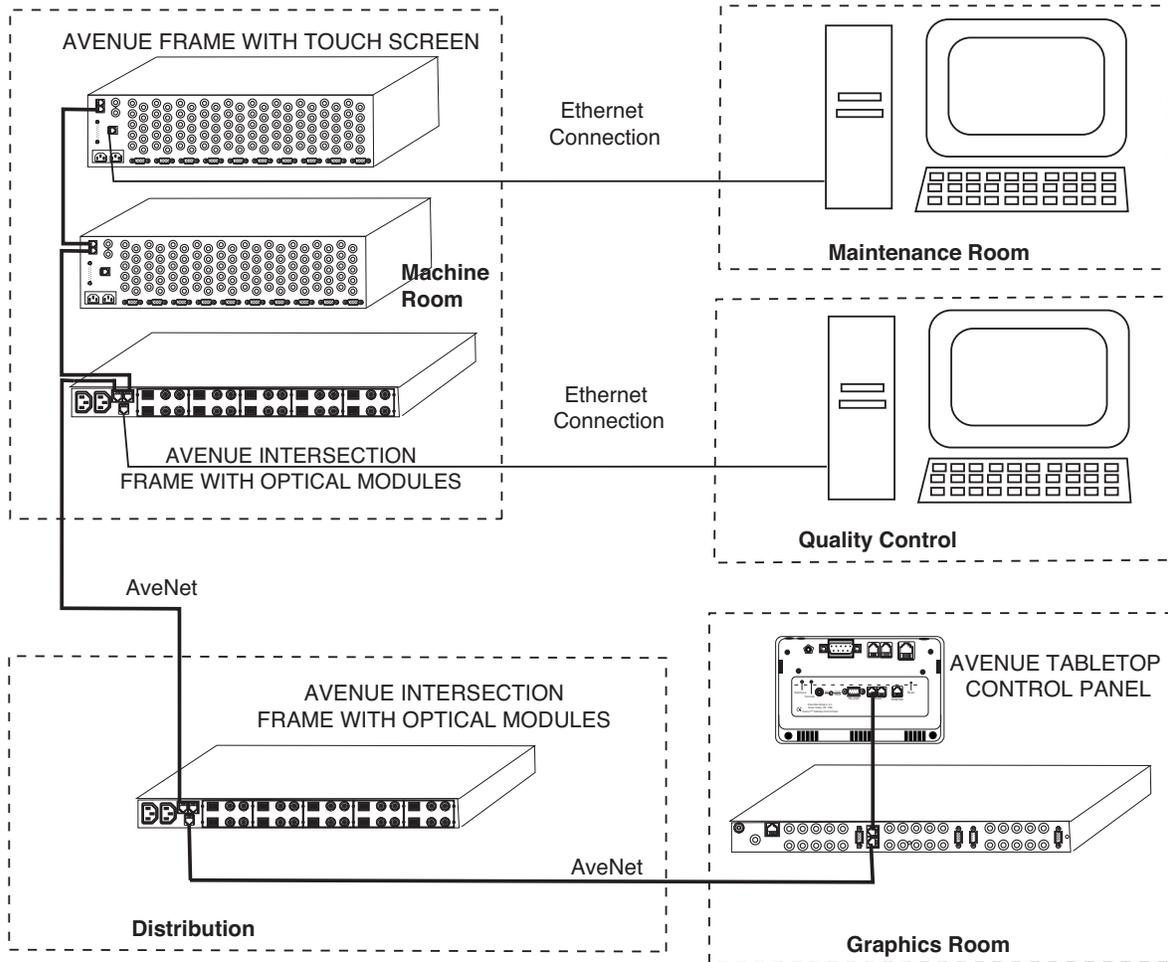
Avenue Intersection Frame In Avenue Network

Warning

Rick of electric shock. Qualifed service personael should only access power supply after frame has been unplugged from power.

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.

INTERSECTION FRAME INSTALLATION

The 1 RU Avenue Intersection Frame is designed to be installed in a standard 19 inch rack with four customer-supplied standard rack screws. This section explains any physical installation and cabling instructions necessary for using Avenue Intersection Frames. After physical installation, network configuration of the Local controls on the Control module in the frame. Refer to the **Configuration** section of this data pack.
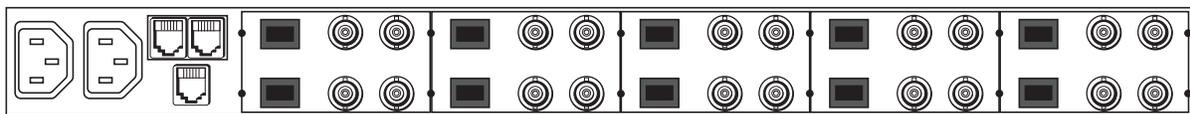
Intersection Frame Rear Connectors

5065 Power Supplies

Each Avenue Intersection frame includes a single 5065 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. A redundant power supply can be ordered. Power supplies are hot-swappable.

Cabling

Network connection of an Intersection Frame is made on the rear of the panel as illustrated below. The Intersection Frame can communicate with Avenue frames through via Ethernet or through an AveNet connection.

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 networks can then be connected together via Ethernet. 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 System Control module in each frame.

RJ11 Connector

View from Contact Side

| | 1 |
| 6 |

Cable Pinout

6☐	N/C	1☐
5☐		2☐
4☐	RED	3☐
3☐	GREEN	4☐
2☐		5☐
1	N/C	6

Termination Pinout

	N/C	1☐
		2☐
	RED	3☐
	GREEN	4☐
		5☐
	N/C	6
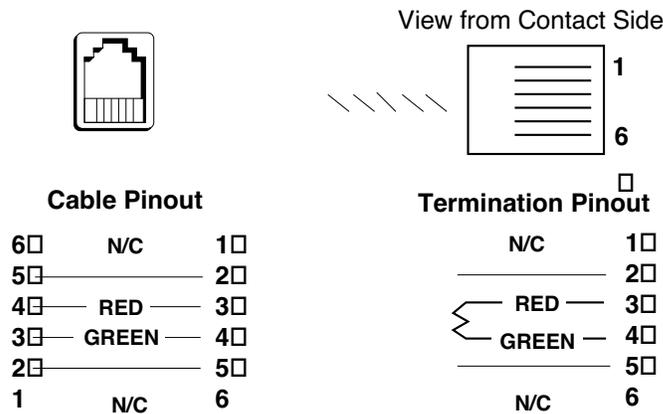
AveNet RJ11 Connector Pinout

Ethernet:

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

Each Avenue device on the Ethernet network must have a different IP Address, including the Express Panel. The address for the frame is set using the Status menu functions on the front of the System Control Module in each frame, or a Touch Screen or Express Panel. Refer to the **Intersection Networking** section for detailed information.

5070 System Control Module

The optional 5070 System Control Module provides the Ethernet and AveNet interface connections to an Avenue Intersection 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 and the Avenue PC Control Application Software.

A Status menu on the front of the module in the Intersection frame provides Ethernet, 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.

5065 Front Controls

System Control Module Front Edge Controls
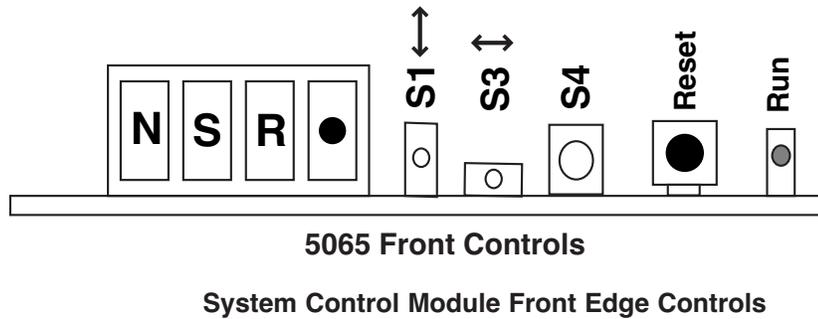
SETTING AVENET AND IP ADDRESSES

Networking an Avenue frame is explained in detail in the Avenue System Overview. This data pack is available online from http://www.ensembledesigns.com.

For networking the Intersection frame into an Avenue network, the AveNet and IP addresses of each frame must be set at the frame using the Status menu functions on the front of the System Control Module. The Status menu display and the switches are shown in the illustration on the next page.

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 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
- Enable AVIP function and set lower and upper AveNet addresses in frame group.

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.

Enter/Exit
S1

1.5.0 ←——→ **Ver**   Use S1 to enter the menu. The current version of system
                      software on the Control Module will scroll through the display.

S3

1 - 1023 ←——→ **Adr**   Use S1 to enter the menu. The current AveNet address of this
                        Control Module will be displayed. To change address, use S3 to
                        move to the desired number. Press S4 to set the parameter and exit.

192.168.0.10 ←——→ **V ip**   Use S1 to enter the menu. The current IP address of this
                              Control Module will be displayed. To change address,
                              To change address, use ip1-4 below.

XXX.168.0.10 ←——→ **ip1**   Use S1 to enter the menu. Set the first segment of the IP address
                                by using S3 to scroll through the numbers 0-255. Press S4 to set
                                the parameter and exit the menu.

192.**XXX.**0.10 ←——→ **ip2**   Use S1 to enter the menu. Set the second segment of the IP address
                                by using S3 to scroll through the numbers 0-255. Press S4 to set
                                the parameter and exit the menu.

192.168.**XXX.**10 ←——→ **ip3**   Use S1 to enter the menu. Set the third segment of the IP address
                                  by using S3 to scroll through the numbers 0-255. Press S4 to set
                                  the parameter and exit the menu.

192.168.0.**XXX** ←——→ **ip4**   Use S1 to enter the menu. Set the fourth segment of the IP address
                                 by using S3 to scroll through the numbers 0-255. Press S4 to set
                                 the parameter and exit the menu.

Press Ent to Reset
Touch Panel ←——→ **Tch**   Press the ENTER button, S4, to reset the calibration on
                               the Touch Screen Panel.

On/Off ←——→ **Avip**   Use S1 to enter the menu. Use S3 to turn AveNet Over IP on or off.
                       Press S4 to set the parameter and exit the menu.

1 - 1023 ←——→ **Lo A**   Use S1 to enter the menu. Use S3 to scroll to the
                         lowest AveNet address in the frame group. Use S4 to set the
                         parameter and exit the menu.

1 - 1023 ←——→ **Up A**   Use S1 to enter the menu. Use S3 to scroll to the
                         upper (highest) AveNet address in the frame group. Use S4 to set the
                         parameter and exit the menu.

System Control Module Status Menu

SPECIFICATIONS

Avenue Intersection Frame with 5065 Power Supply

Frame Dimensions:

Height: 1 RU, 1.75 inches / 44.5 mm
Width: 19 inches / 482.6 mm
Depth: 15.1 inches / 383.6 mm
Weight (no modules) 11 lbs / 5 kg

5065 Power Supply

AC Voltage Input: 85-264 VAC
Line Frequency: 47-63 Hz
Supply Current: 1 Amp
Output Voltage: +12 volts ±0.5 volt @ 3.3 Amps
                       -12 volts ±0.5 volt @ 8 Amps
Max power required: 50w or less
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 70 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.

SOFTWARE UPDATING

Periodically software upgrades for the optional System Control module will be available at http://www.ensembledesigns.com/support These can be downloaded onto your PC and then you can use Avenue PC to update the module. (Refer to the Avenue PC documentation for more information).

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: