

AVENUE

Avenue™ signal integration system

Model 5465 Sync Changeover Switch Data Pack

ENSEMBLE

D E S I G N S

Revision 2.1 SW v1.1.0

This data pack provides detailed installation, configuration and operation information for the **5465 Sync Changeover Switch** module as part of the Avenue Signal Integration System.

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

- Module Overview
- Applications
- Installation
- Cabling
- Module Configuration and Control
 - Front Panel Controls and Indicators
 - Avenue PC Remote Control
 - Avenue Touch Screen Remote Control
- Troubleshooting
- Software Updating
- Warranty and Factory Service
- Specifications

MODULE OVERVIEW

The 5465 Sync Changeover Switch module is a fail-safe protection switch for monitoring and switching critical sync reference signals from the Avenue 5400 and 5405 Sync Pulse Generator modules or third party SPGs. When a fault is detected in any of the Primary inputs, and the Secondary inputs are verified as good, the protect switch will activate, causing all of the Secondary inputs to be switched simultaneously to the module's outputs ensuring constant, stable references to a facility. Multiple changeover switches can be ganged together through the control system if required to handle all signals that need to be protected.

The action of the protect switch, both when a fault occurs in one of the Primary signals and when that fault clears, can be configured as either auto reset on or off.

When Auto mode is turned on, a fault in any one Primary signal will cause the switch to automatically throw to the Secondary. With Auto mode turned off, a fault in the Primary signal will generate an alarm but no switching will take place.

The Auto Reset parameter governs how the switch behaves when the Primary signals are restored following a fault. With Auto Reset on, the switch will revert back to the restored Primary reference signals within a time period set by the user. When Auto Reset is off, manual intervention is needed to throw the switch back to the Primary reference signals.

There are three poles or channels on each 5465 module referred to as Channel A, B, and C. Channel A tests serial digital black and bars component signals, while Channel B and C test analog video, AES audio and Tri Level Sync (Remote mode only). The signal type for each channel can be set locally or remotely and each channel can be set to disabled (not tested) if desired. The 5465 monitors the integrity of the serial digital component sync signal in terms of presence and locking. Analog video, AES audio and Tri Level Sync are tested for presence, low level, high level (overload), and error conditions.

If the output of a channel which is being tested is not properly terminated, the switch will continuously flip-flop between the Primary and Secondary inputs.

The sync changeover switch is designed to be a hard contact device and so an input is directly connected to the output through a relay contact without buffering. Thus, a loss of proper termination of the output will be seen by the 5465 circuitry. Failure of the output termination will cause the 5465 to sense the signal as having a fault due to the improper termination. If the module is set for Auto Changeover or Auto Reset, loss of proper termination will cause a flip-flopping of the 5465 Protect Switch. When the faulty signal is sensed, the Secondary input will be switched to the output. An internal terminating resistor is now connected to the Primary input and this input is now sensed as correct, while the Secondary is now unterminated and is sensed as having a fault. While this is usually not a matter of concern in daily operation as the output is properly terminated, it can produce unexpected results if the switch is installed and powered up without a properly terminated cable.

As illustrated in the block diagram on the next page, the module is divided into three poles or channels, each with detection circuits which evaluate input source signal types as configured by the user. The status of the signal condition from the detector is used to decide if the switch will throw from Primary to Secondary. All three poles switch together if any one signal fails a test. The user may configure which poles contribute to the decision. Poles that are disabled will not test the signal but will still pass the signal to the output. This allows signals that cannot be tested by the 5465 to be used if desired.

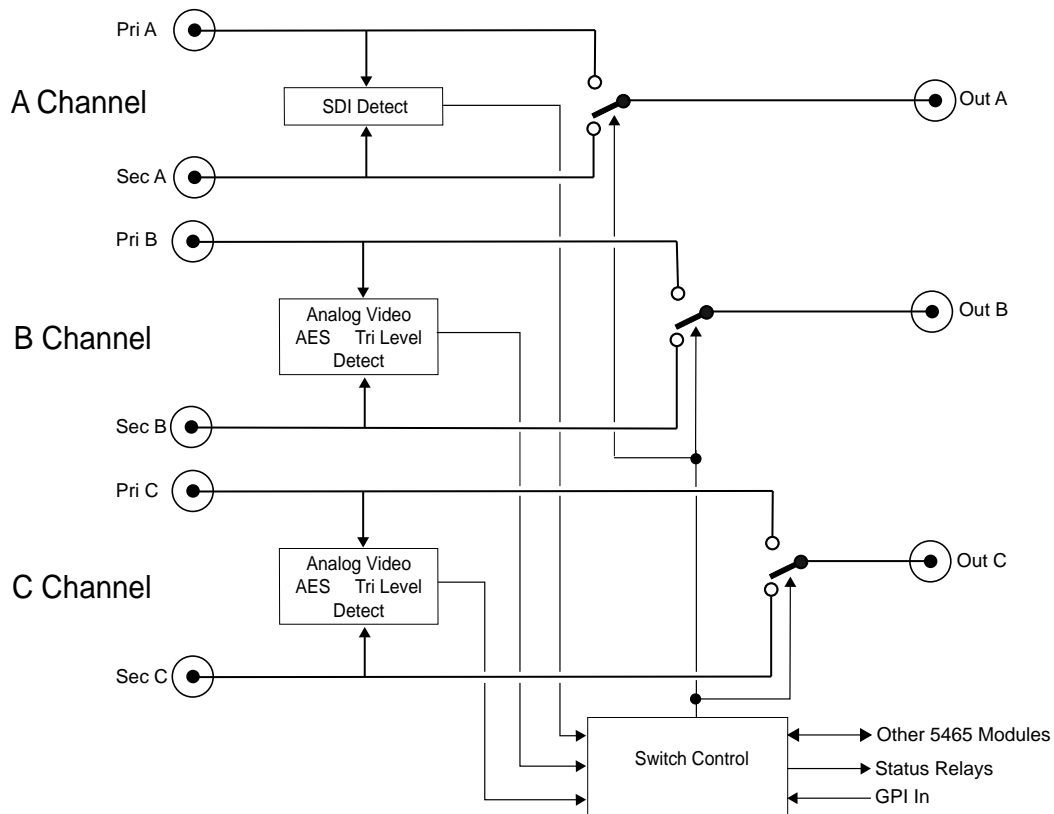
Fault conditions can be monitored with an external alarm system or other device through the 15-pin Control connector on the corresponding rear backplane connector. The Form C relays status outputs from this connector can be monitored by a device to show Primary and Secondary signal status and the current position of the protect switch (Primary or Secondary).

Two GPI Override Inputs are also available to allow changing switch position from an external device. This can be used to manually reset the switch after the Primary has recovered from a fault condition.

The on-board CPU can monitor and report module ID information (slot location, software version and board revision), and power status to the optional frame System Control module. This information can be accessed by the user or set to register an alarm if desired using the remote control options available.

As illustrated in the block diagram below, the module is divided into three poles or channels, each with detection circuits which evaluate input source signal types as configured by the user. The status of the signal condition from the detector is used to decide if the switch will throw from Primary to Secondary. All three poles switch together if any one signal fails a test. The user may configure which poles contribute to the decision. Poles that are disabled will not test the signal but will still pass the signal to the output. This allows signals that cannot be tested by the 5465 to be used if desired.

Fault conditions can be monitored with an external alarm system or other device through the 15-pin **Control** connector on the corresponding rear backplane connector. The Form C



5465 Sync Changeover Switch Block Diagram

relays status outputs from this connector can be monitored by a device to show Primary and Secondary signal status and the current position of the protect switch (Primary or Secondary).

Two GPI Override Inputs are also available to allow changing switch position from an external device. This can be used to manually reset the switch after the Primary has recovered from a fault condition.

The on-board CPU can monitor and report module ID information (slot location, software version and board revision), and power status to the optional frame System Control module. This information can be accessed by the user or set to register an alarm if desired using the remote control options available.

APPLICATIONS

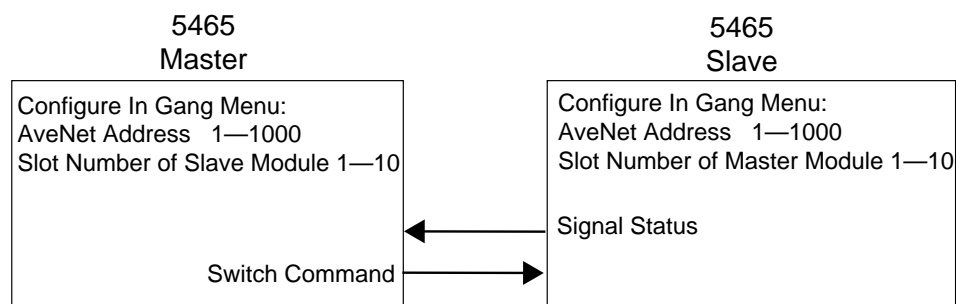
As shown in the application on the next page, different sync reference sources from Avenue or third party sync pulse generators can be fed to three channels on the 5465 module. Each channel output can then be sent to a distribution amplifier to distribute the various sync signals throughout the facility. It is important that all output destinations (DA inputs) be properly terminated to maintain signal integrity.

Two 5465 modules can be ganged together to take full advantage of protection for up to six signals. For gang operation, one of the 5465 modules is configured as the Master and the other 5465 is configured as the Slave. Configuration is performed through the control system.

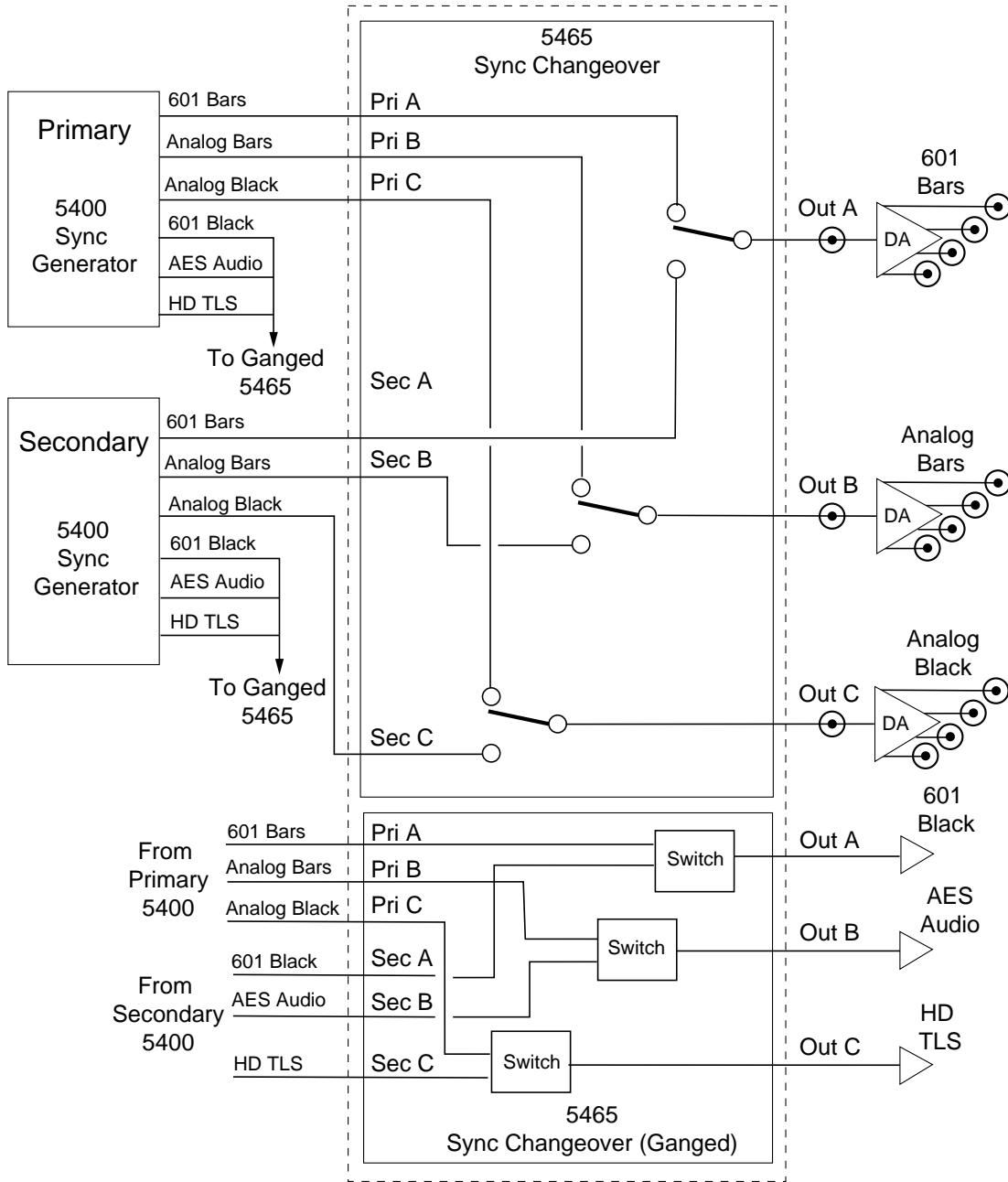
As shown in the illustration below, the Master module makes all decisions about switching based on signal status from its inputs and those from the Slave module. Channel A, B and C status signals from the Slave module are reported back to the Master module on one status indicator labeled Gang in the menu system.

The ganged 5465 modules may reside in the same frame or in different frames but must be on the same AveNet network. The Master and Slave configurations are defined in the **Gang** remote control menu for each module. Each module is then identified to the other by its AveNet frame address and its slot location in that frame so the modules can communicate through the control system.

Relay circuits accessible from the 15-pin D Control connector on the rear backplane (not shown) can also be connected to alarms for monitoring Primary and Secondary status and switch position.



Master – Slave Relationship Between 5465 Ganged Modules



Ganged 5465 Modules Fed by Primary and Secondary 5400 Modules

INSTALLATION

Plug the 5465 module into any one of the slots in the 1 RU or 3 RU frame and install the plastic overlay provided onto the corresponding group of rear BNC connectors associated with the module location. Note that the plastic overlay has an optional adhesive backing for securing it to the frame. Use of the adhesive backing is only necessary if you would like the location to be permanent and is not recommended if you need to change module locations. This module may be hot-swapped (inserted or removed) without powering down or disturbing performance of the other modules in the system.

CABLING

Refer to the 3 RU and 1 RU backplane diagrams of the module on the following page for cabling instructions. Note that unless stated otherwise, the 1 RU cabling explanations are identical to those given in the 3 RU diagram.

Status and Alarm Cabling

In addition to full monitoring and access through the control system, the module provides contact closure status indications through the 15-pin **D Control** connector on the corresponding rear slot of the frame. These connections can drive an alarm system or other external monitoring devices including LEDs. Two override GPI Inputs can also be accessed through the connector. Pinouts for the status monitoring are given in the preceding illustration.

Form C relay contacts provide both NO (Normally Open) and NC (Normally Closed) switching to indicate fault status of the Primary and Secondary inputs and the protection switch output. Both the NO and NC contacts are simultaneously available on the **Control** connector. Each output is independently strappable to provide Ground, current limited +5V (1k Ω resistor), or a Common which appears on the D connector.

The three relay contacts provide the following status reporting:

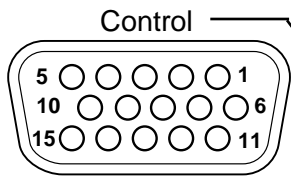
- **Primary Good or Failed** – indicates Primary input status as Good when NO contact is active (switched to Common).
- **Secondary Good or Failed** – indicates Secondary input status as Good when NO contact is active (switched to Common).
- **Switch Position** – indicates the position of the protect switch as either Primary or Secondary selected. The normal position corresponds to the Primary feeding the input.

An individual common is provided to each of the relays. For each of the three status relays there is a 3-position jumper on the module which configures the common signal that will be used by that relay. The choices are as follows:

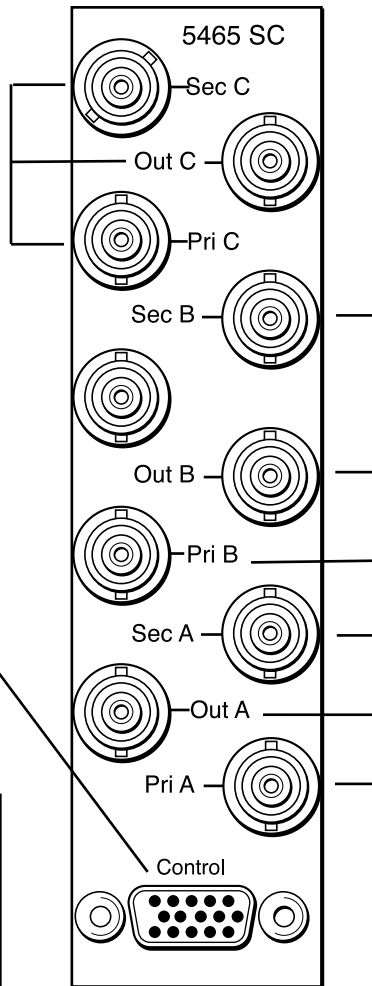
- **COM** – uses the user-provided common signal from the **Control** connector.
- **+5** – provides a +5V signal through a 1k Ω resistor to the relay common.
- **Gnd** – uses ground as the relay common.

3 RU Backplane

Channel C – Analog Video, AES or Tri Level Sync Ref:
 Connect a primary analog video, AES audio or Tri Level Sync reference input signal to **Pri C**.
 Connect a secondary analog video, AES or Tri Level sync reference input signal to **Sec C**.
 Connect the Channel C output reference signal from **Out C** to a properly terminated distribution amplifier for feeding the signal throughout the facility.
NOTE: Tri Level Sync is available only in Remote mode.



Pin	Function
1	Pri NO
2	Pri NC
3	Gnd
4	Pri Com
5	Sec NO
6	Gnd
7	Sec NC
8	Sec Com
9	Switch_NO
10	Switch_NC
11	Switch_Com
12	Pri Select GPI Input
13	Gnd
14	Sec Select GPI Input
15	Not Used

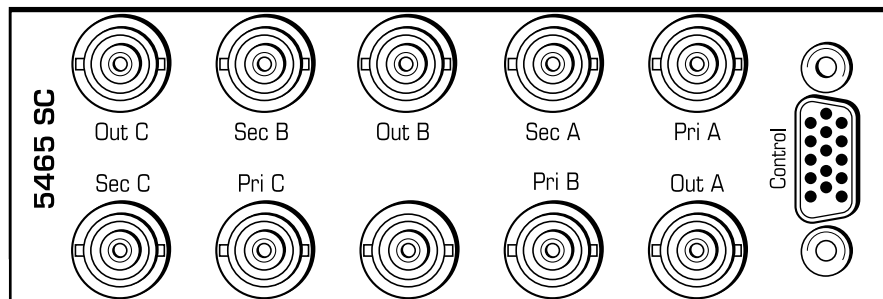


Channel B – Analog Video, AES or Tri Level Sync Ref:
 Connect a primary analog video, AES or Tri Level sync reference input signal to **Pri B**.
 Connect a secondary analog video, AES audio or Tri Level Sync reference input signal to **Sec B**.
 Connect the Channel B output reference signal from **Out B** to a properly terminated distribution amplifier for feeding the signal throughout the facility.
NOTE: Tri Level Sync is available only in Remote mode.

Channel A – Serial Digital Ref:
 Connect a primary serial digital 601 Black or Bars reference input signal to **Pri A**.
 Connect a secondary serial digital 601 Black or Bars reference input signal to **Sec A**.
 Connect the Channel B output reference signal from **Out A** to a properly terminated distribution amplifier for feeding the signal throughout the facility.

IMPORTANT NOTE: All channel output destinations must be terminated properly. Improper termination will affect the integrity of the sync signal and cause errors. Be sure any unused inputs to distribution amplifiers or other destinations are terminated.

1 RU Backplane



Because both the NO and NC connections are provided, it is possible to have independent status lines for each of the two states of a status signal. For example, if the jumper is set to +5V, the Primary NO output will source +5V when the relay is in the normal position (Signal Failed) and the Primary NC output will source the +5V when the relay is closed (Signal Good). Additionally in the case of selecting +5V as the common, the 1k Ω resistor on the module will act as a current limiter, allowing the direct connection of ordinary LEDs to each of these output pins. A green LED could be connected to the NC output and a red LED to the NO output. This provided very complete and explicit indication to the operator as to the signal status.

Also available through the **Control** connector are two Override GPI inputs that when closed to ground, will force the switch to either Primary or Secondary. These inputs may also be used to reset the Primary after a fault has cleared.

MODULE CONFIGURATION AND CONTROL

The configuration parameters for each Avenue module must be selected after installation. This can be done remotely using one of the Avenue remote control options or locally using the module front panel controls. Each module has a **REMOTE/LOCAL** switch on the front edge of the circuit board which must first be set to the desired control mode.

The configuration parameter choices for the module will differ between **Remote** and **Local** modes. In **Remote** mode, the choices are made through software and allow more selections. The **5465 Parameter Table** on the following page summarizes and compares the various configuration parameters that can be set remotely or locally and the default/factory settings.

If you are not using a remote control option, the module parameters must be configured from the front panel switches. Parameters that have no front panel control will be set to a default value. The **Local** switches are illustrated in the **Front Panel Controls and Indicators** section following the **5465 Parameter Table**.

Avenue module parameters can be configured and controlled remotely from one or both of the remote control options, the Avenue Touch Screen or the Avenue PC Application. Once the module parameters have been set remotely, the information is stored on the module CPU. This allows the module be moved to a different cell in the frame at your discretion without losing the stored information. Remote configuration will override whatever the switch settings are on the front edge of the module.

For setting the parameters remotely using the Avenue PC option, refer to the **Avenue PC Remote Configuration** section of this document.

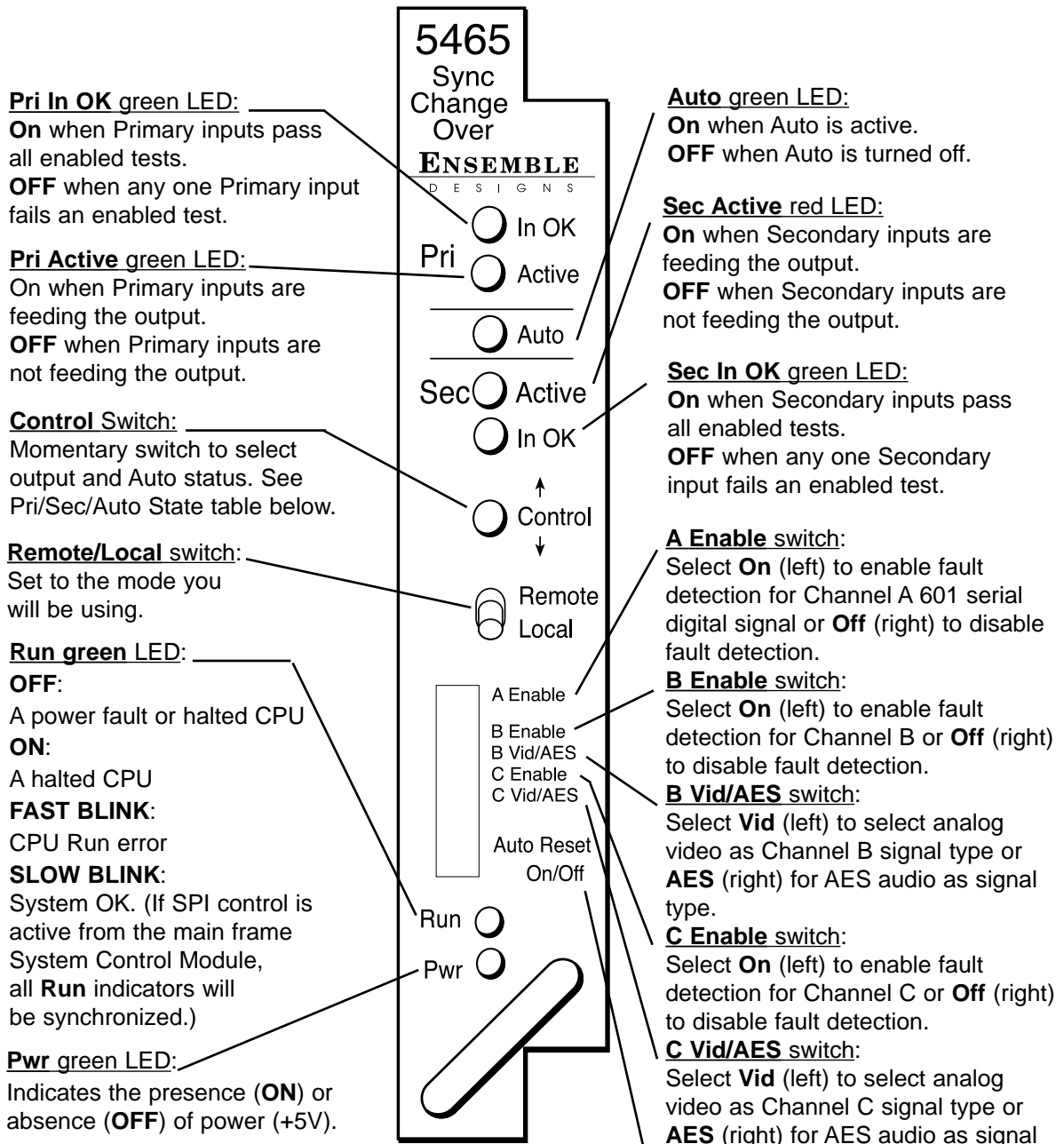
For setting the parameters remotely using the Avenue Touch Screen option, refer to the **Avenue Touch Screen Remote Configuration** section of this data pack following Avenue PC.

5465 Parameter Table

CONTROL	LOCAL	REMOTE	DEFAULT/FACTORY
Primary	Selected with Control Switch	Selects Primary	Selected
Secondary	Selected with Control Switch	Selects Secondary	Deselected
Auto	Selected with Control Switch	Selects Auto	Selected
Auto Reset	Switch 8: On Off	On Off	On
Reset Time	5 seconds	0 — 60 seconds	15 seconds
Ch A Mode	Switch 1: A Enable (left) A Disable (right)	Off Serial	Serial
Ch B Mode	Switch 3: B Enable (left) B Disable (right) Switch 4: Vid (left) AES (right)	Off Composite AES Tri Level (remote only)	Composite
Ch C Mode	Switch 5: C Enable (left) C Disable (right) Switch 6: Vid (left) AES (right)	Off Composite AES Tri Level (remote only)	Composite
Gang Enable	Off	Off Master Slave	Off
Frame Adr	1	1 — 1000	1
Slot Number	1	1 — 10	1

Front Panel Controls and Indicators

Each front edge indicator and switch setting is shown in the diagram below:



LEDs	Pri/Sec/Auto State			
	Primary Auto Off	Primary Auto On	Secondary Auto Off	Secondary Auto On
Pri Active	On	On	Off	Off
Auto	Off	On	Off	On
Sec Active	Off	Off	On	On

Up ← Control Switch → Down

Avenue PC Remote Configuration

The Avenue PC remote control status menu for this module is illustrated and explained below. Refer to the **5465 Parameter Table** for a summary of available parameters that can be set remotely through the menus illustrated. For more information on using Avenue PC, refer to the Avenue PC Control Application Software data pack.

5465 Avenue PC Menu

The **Status** menu screen shown below displays overall status of the Primary and Secondary channels, including the ganged channels (if present and enabled). Status indicators for each channels will light Green = Good, Red = Faulted, Gray = Not enabled (testing disabled in **Config** menu) along with a text display of channel status (**Good** or **Failed**). Auto Reset and Reset Time controls for the switching function are also set with this menu. Switch Position status is also reported.

- **Pri Status** – shows the status of the Primary A, B and C channels and the ganged channel (if present and enabled in the **Gang** menu). The **OK** indicator will report a failure when any one channel has faulted.
- **Sec Status** – shows the status of the Secondary A, B and C channels, and the ganged channel (if present and enabled in the **Gang** menu). The **OK** indicator will report a failure when any one channel has faulted..
- **Pri** – lights green when the Primary inputs are feeding the output. Press this switch control to select the Primary as the output
- **Auto** – lights green when **Auto** is turned on. Switch **Auto** on and off with this switch control. When **Auto** is on, the module will automatically switch to the Secondary input if the Primary fails and the Secondary is good.
- **Sec** – lights red when the Secondary inputs are feeding the output. Press this switch control to select the Secondary as the output.
- **Auto Reset** – set to **On** or **Off** to determine if the switch will automatically switch back from Secondary to the Primary channel after it recovers.
- **Reset Time** – set the amount of time the Primary signals must be good before the auto reset switches back to Primary from Secondary.

The screenshot shows the 'Status' menu with the following elements:

- Tabs:** Status (selected), Signals, Config, Gang
- Pri Status:** A (Green), B (Green), C (Green), Gang (Red), OK (Red). Text display: Failed
- Sec Status:** A (Green), B (Green), C (Green), Gang (Green), OK (Green). Text display: Good
- Switches:** Pri (Green), Auto (White), Sec (White)
- Switch Pos:** Text display: Primary
- Auto Reset:** Dropdown menu: On
- Reset Time:** Arrow controls and text display: 4 secs

The **Signals** menu shown below displays the status of each of the Primary and Secondary A, B and C channels. Signal status is reported as the following for each channel signal type:

- **Pri A** – status indicators for 601 serial digital reference are **Not Tested, No Signal, Not Locked** or **Normal**.
- **Pri B and C** – status indicators for Analog Video, AES audio and Tri Level Sync reference are **Not Tested, No Signal, Low Level, Normal, Overload** or **Error**.

The screenshot shows a software interface with four tabs: Status, Signals, Config, and Gang. The 'Signals' tab is active. It displays a 2x3 grid of status indicators. The left column shows 'Pri A Status', 'Pri B Status', and 'Pri C Status'. The right column shows 'Sec A Status', 'Sec B Status', and 'Sec C Status'. Each indicator is shown in a text box with the word 'Normal' entered.

The **Config** menu shown below allows you to configure the signal type to be detected for each of the three channels:

- **Chan A Mode** – set Channel A mode to **Serial** or **Off**.
- **Chan B Mode** – set Channel B mode to **Off, Composite, AES** or **Tri Level**.
- **Chan C Mode** – set Channel C mode to **Off, Composite, AES** or **Tri Level**.

The screenshot shows the same software interface with the 'Config' tab active. It displays three dropdown menus for channel modes. 'Chan A Mode' is set to 'Serial'. 'Chan B Mode' is set to 'AES'. 'Chan C Mode' is set to 'Composite'.

The **Gang** menu shown below allows you to configure the 5465 module for operating in a ganged mode in conjunction with another 5465 module in an Avenue frame on the same AveNet network. Refer to the **Applications** explanation given earlier in this data pack for more details on how to gang modules.

- **Gang Enable** – if not using the module in ganged mode with another 5465, set to **Off**. For ganged mode, set the module to act as **Master** or **Slave**. Note that to operate in ganged mode, one module must act as a **Master** and the other ganged 5465 module must act as the **Slave**.
- **Frame Adr** – set the AveNet frame address to point to the ganged 5465 module on the AveNet network. Note that the other 5465 module must also be configured to point back to the location of this module.
- **Slot Number** – set the slot number of the frame where the ganged 5465 module is installed. Note that the other 5465 module must also be configured to point back to the slot number of this module.
- **Status** – the status of the ganged connection will be reported as **Off**, **Connect**, or **FAIL**.

The screenshot shows the 'Gang' configuration window. At the top, there are four tabs: 'Status', 'Signals', 'Config', and 'Gang'. The 'Gang' tab is selected. Below the tabs, there are three main sections:

- Gang Enable:** A dropdown menu with 'Master' selected.
- Frame Adr:** A section with a left-pointing arrow icon, a right-pointing arrow icon, and a text box containing the number '30'.
- Slot Number:** A section with a left-pointing arrow icon, a right-pointing arrow icon, and a text box containing the number '7'.
- Status:** A text box containing the word 'Connect'.

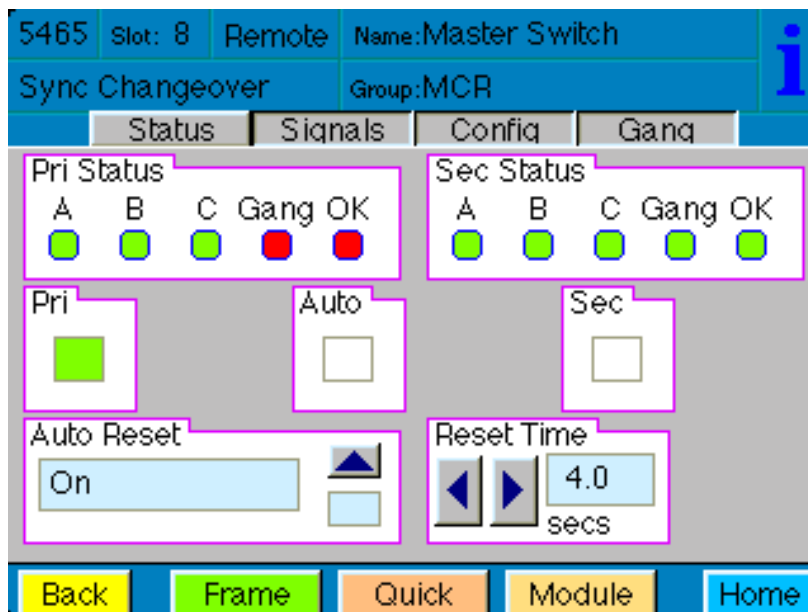
Avenue Touch Screen Remote Configuration

The Avenue Touch Screen remote control status menu for this module is illustrated and explained below. Refer to the **5465 Parameter Table** for a summary of available parameters that can be set remotely through the menus illustrated. For more information on using Avenue Touch Screen, refer to the Avenue System Overview.

5465 Avenue Touch Screen Menus

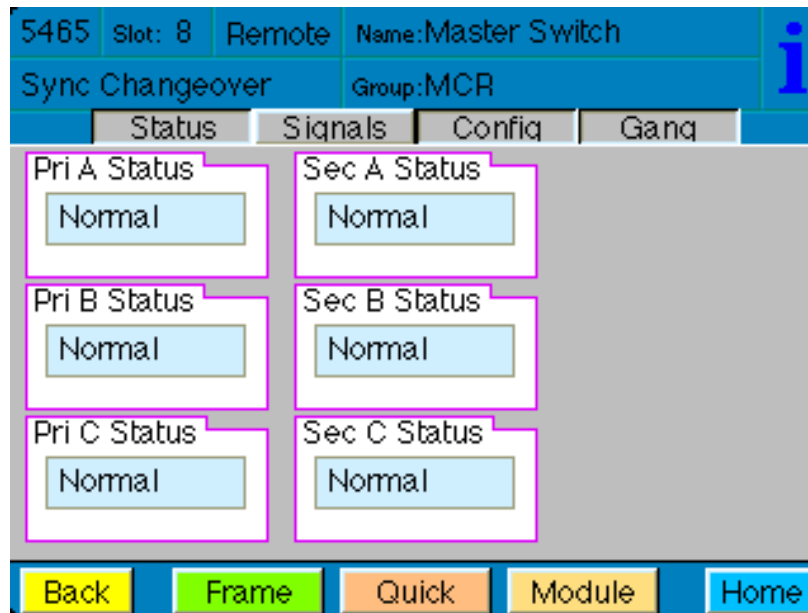
The **Status** menu screen shown below displays overall status of the Primary and Secondary channels, including the ganged channels (if present and enabled). Status indicators for each channels will light Green = Good, Red = Faulted, Gray = Not enabled (testing disabled in **Config** menu) along with a text display of channel status (**Good** or **Failed**). Auto Reset and Reset Time controls for the switching function are also set with this menu. Switch Position status is also reported.

- **Pri Status** – shows the status of the Primary A, B and C channels and the ganged channel (if present and enabled in the **Gang** menu). The **OK** indicator will report a failure when any one channel has faulted.
- **Sec Status** – shows the status of the Secondary A, B and C channels, and the ganged channel (if present and enabled in the **Gang** menu). The **OK** indicator will report a failure when any one channel has faulted..
- **Pri** – lights green when the Primary inputs are feeding the output. Press this switch control to select the Primary as the output
- **Auto** – lights green when **Auto** is turned on. Switch **Auto** on and off with this switch control. When **Auto** is on, the module will automatically switch to the Secondary input if the Primary fails and the Secondary is good.
- **Sec** – lights red when the Secondary inputs are feeding the output. Press this switch control to select the Secondary as the output.
- **Auto Reset** – set to **On** or **Off** to determine if the switch will automatically switch back from Secondary to the Primary channel after it recovers.
- **Reset Time** – set the amount of time the Primary signals must be good before the auto reset switches back to Primary from Secondary.



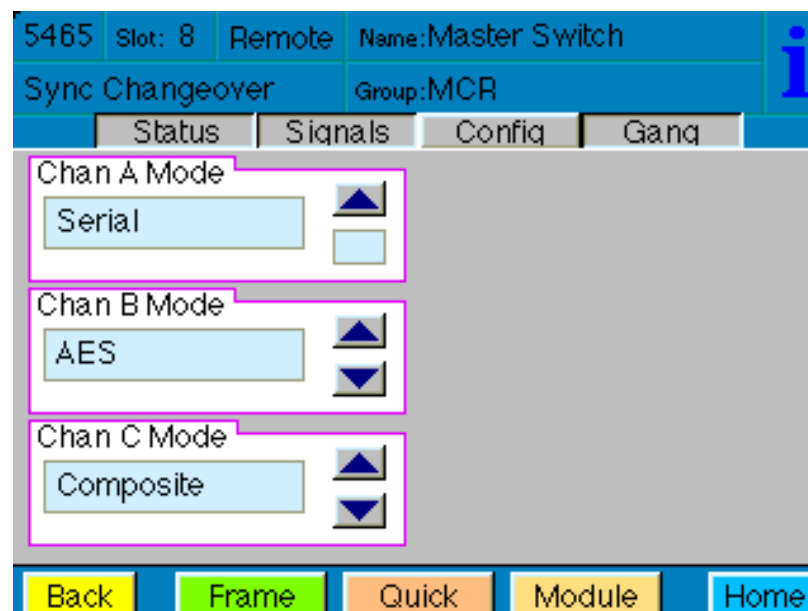
The **Signals** menu shown below displays the status of each of the Primary and Secondary A, B and C channels. Signal status is reported as the following for each channel signal type:

- **Pri A** – status indicators for 601 serial digital reference are **Not Tested**, **No Signal**, **Not Locked** or **Normal**.
- **Pri B and C** – status indicators for Analog Video, AES audio and Tri Level Sync reference are **Not Tested**, **No Signal**, **Low Level**, **Normal**, **Overload** or **Error**.



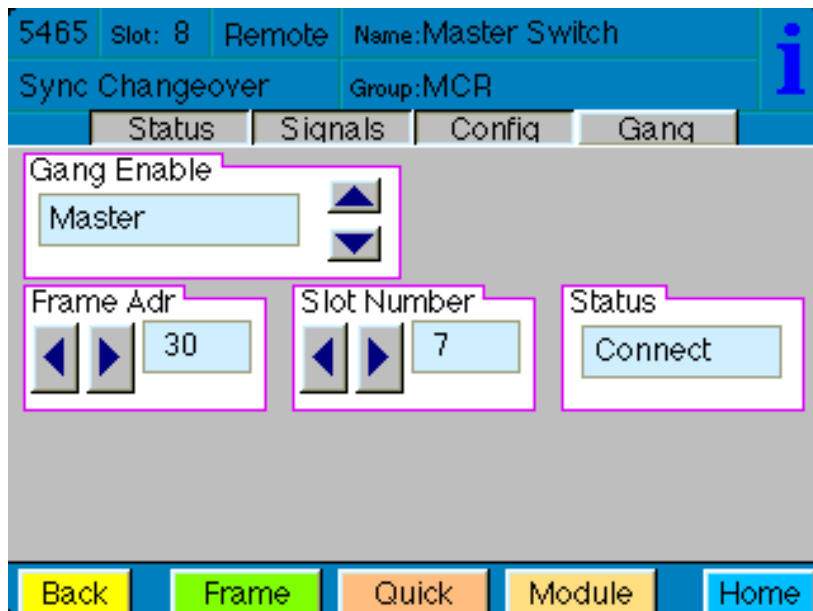
The **Config** menu shown below allows you to configure the signal type to be detected for each of the three channels:

- **Chan A Mode** – set Channel A mode to **Serial** or **Off**.
- **Chan B Mode** – set Channel B mode to **Off**, **Composite**, **AES** or **Tri Level**.
- **Chan C Mode** – set Channel C mode to **Off**, **Composite**, **AES** or **Tri Level**.



The **Gang** menu shown below allows you to configure the 5465 module for operating in a ganged mode in conjunction with another 5465 module in an Avenue frame on the same AveNet network. Refer to the **Applications** explanation given earlier in this data pack for more details on how to gang modules.

- **Gang Enable** – if not using the module in ganged mode with another 5465, set to **Off**. For ganged mode, set the module to act as **Master** or **Slave**. Note that to operate in ganged mode, one module must act as a **Master** and the other ganged 5465 module must act as the **Slave**.
- **Frame Adr** – set the AveNet frame address to point to the ganged 5465 module on the AveNet network. Note that the other 5465 module must also be configured to point back to the location of this module.
- **Slot Number** – set the slot number of the frame where the ganged 5465 module is installed. Note that the other 5465 module must also be configured to point back to the slot number of this module.
- **Status** – the status of the ganged connection will be reported as **Off**, **Connect**, or **FAIL**.



TROUBLESHOOTING

As a troubleshooting aid, the reference signal status and presence, power and CPU status can be easily monitored from the front panel of this module using the front panel indicators.

Refer to the overall troubleshooting tips given below for the module:

Can't control module:

- Check status of CPU **Run** green LED. Should be blinking slowly and in unison with other modules if System module is present. If not, try removing it and plugging it in again to be sure it is seated properly.
- System module may not be working properly if installed.

No signals out of module:

- Check status of **Active** LEDs. Primary or Secondary should be lit. If not, check all inputs for presence and quality.
- Check cabling to inputs of module.
- Check inputs to destinations are terminated properly.

You may also refer to the technical support section of the Ensemble Designs web site for the latest information on your equipment at the URL below:

<http://www.ensembledesigns.com/support>

SOFTWARE UPDATING

Software upgrades for each module can be downloaded remotely if the optional System Control module is installed. These can be downloaded onto your PC and then Avenue PC will distribute the update to the individual module. (Refer to the Avenue PC documentation for more information) Periodically updates will be posted on our web site. If you do not have the required System Control Module and Avenue PC, modules can be sent back to the factory for software upgrades.

WARRANTY AND FACTORY SERVICE

Warranty

This module is covered by a five year limited warranty, as stated in the main Preface of this manual. 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@endes.com

<http://www.ensembledesigns.com>

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

SPECIFICATIONS

5465 Sync Changeover Switch

Input Signal:

Number: Six
Signal Type: Serial Digital, Analog Composite, AES Digital Audio, or Tri Level Sync, selectable
Impedance: 75 Ω
Return Loss: > 15 dB DC to 270 MHz

Output Signal:

Number: Three
Signal Type: Follows input
Impedance: 75 Ω
Return Loss: > 15 dB DC to 270 MHz

Switcher Characteristics:

Type: 75 Ω RF Relay
Insertion Loss: > 0.5 dB

General Specifications:

Connectors: BNC
Power Consumption: < 7.0 Watts
Temperature Range: 0 to 40 degrees C ambient (all specs met)
Relative Humidity: 0 to 95% noncondensing
Altitude: 0 to 10,000 ft
Fusing: 1.5 Amp PTC resettable fuse

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

