

AVENUE

Avenue™ signal integration system

Model 5820 GPI/Serial Interface 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 **5820 GPI/Serial Interface Module** as part of the Avenue Signal Integration System.

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

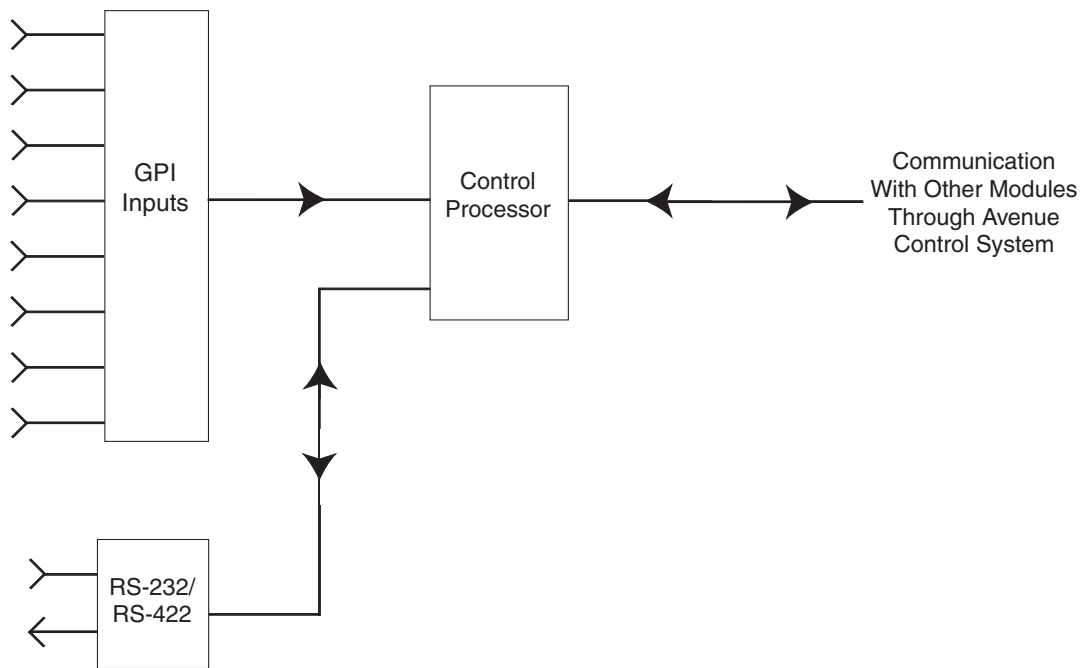
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MODULE OVERVIEW

The 5820 GPI/Serial Interface module extends the capability of the Avenue control system by enabling third party interfaces to control Avenue modules through memory register recall. The 5820 provides General Purpose Interface control (GPI contact closure) over modules located anywhere in the Avenue system. It also provides RS-232/RS-422 serial interface access for use with show controllers and automation systems.

As shown in the block diagram below, GPI or serial inputs from a third party device, such as an automation system, enter the 5820 module. They are mapped using the 5820 GPI menus to any Avenue module in the network. When a GPI or serial command is received by the 5820, it sends a configuration recall command to the corresponding Avenue module. Using M2M™ (Module To Module) communication, the 5820 can communicate with any other module in any Avenue frame on the network. That module then recalls the specified memory register.

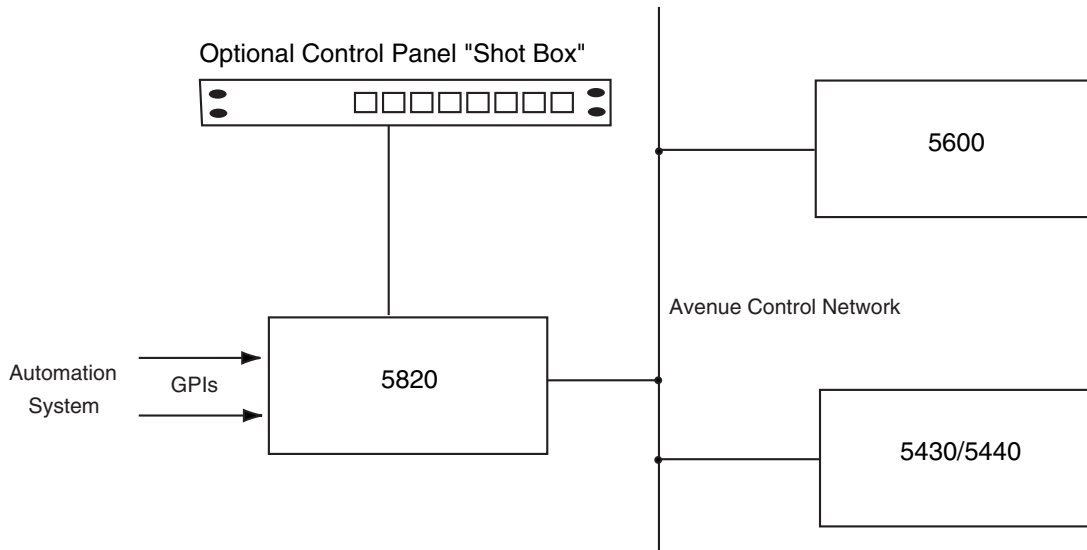
An optional 1 RU control panel is available to serve as a shot box. It has eight illuminated status pushbuttons that can also be used for manual override and status in automated systems. Configuration and monitoring of the 5820 can also be done through an optional Avenue Touch Panel, your web browser, and Avenue PC software.



5820 GPI/Serial Interface Module Block Diagram

APPLICATIONS

As shown below, the 5820 receives GPI information from a third party automation system. The module is then configured to send messages to any Avenue module on the network to recall memory registers. The optional Remote Control Panel shown here can monitor status of the GPI inputs. From the serial interface port of the 5820, an external device can also activate the same recall functions. The interface supports both RS-232 and RS-422 standards and uses a simple ASCII-based protocol for easy interconnection.



5820 GPI/Serial Interface Module Application

INSTALLATION

Plug the 5820 module into any one of the slots in the 1 RU or 3 RU frame. 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

Cabling to the 5820 module is done through the **Control** connector at the bottom of the module backplane. Refer to the next section for control interface connections.

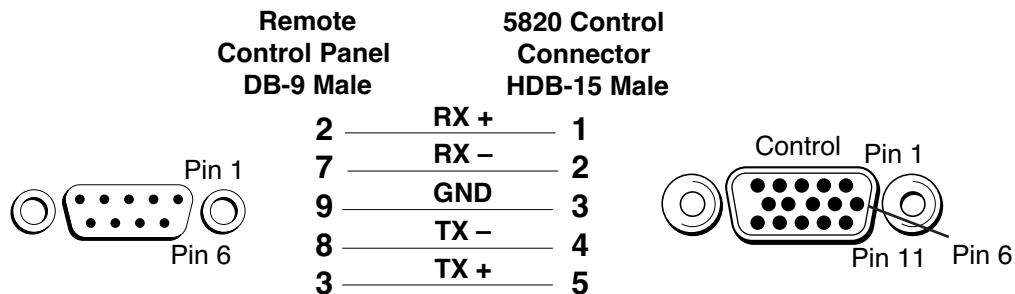
Control Interface Option

Three types of devices can control the **5820** module: An application specific control panel (or multiple control panels), a customer-supplied GPI device and an external device (such as a PC) using a Serial port connection. Connection to the Remote Control Panel and the GPI device to the 5820 module and the cable pinouts for each application are given below.

Remote Control Panel

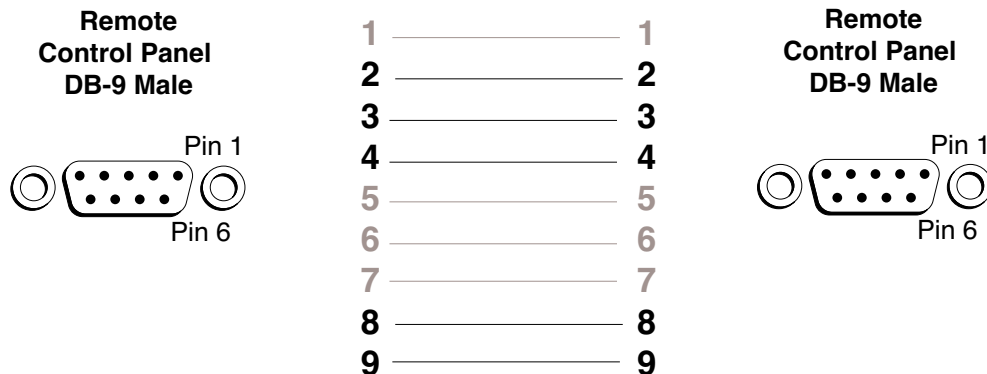
An optional 1 RU Remote Control Panel can serve as a shot box for firing GPIs. The control panel has eight illuminated push buttons that can be used for manual override and status in automated systems.

Connect the Remote Control Panel from the rear of the 5820 control panel (either DB 9-pin male connector) to the **Control** connector on the rear of the 5820 module (HDB 15-pin male) illustrated on the next page. The pinout for this connecting cable is given in the diagram below.



The Remote Control Panel can be rack-mounted in a standard 19-inch equipment rack. Connect the universal in-line power supply provided to the connector at the left rear of the panel. The power supply is auto-sensing and requires no adjustments.

Up to eight Remote Control Panels can be connected in parallel for multipoint control. Panels are connected together via the DB 9-pin loop-through connectors on each panel. The cable to connect each panel is a DB 9-pin male to DB 9-pin male with straight pin-to-pin connections as shown in the illustration below. This cable may be purchased at any electronics supply store or constructed from the diagram. Note not all pins are necessary for control panel connection but all pins can be connected.

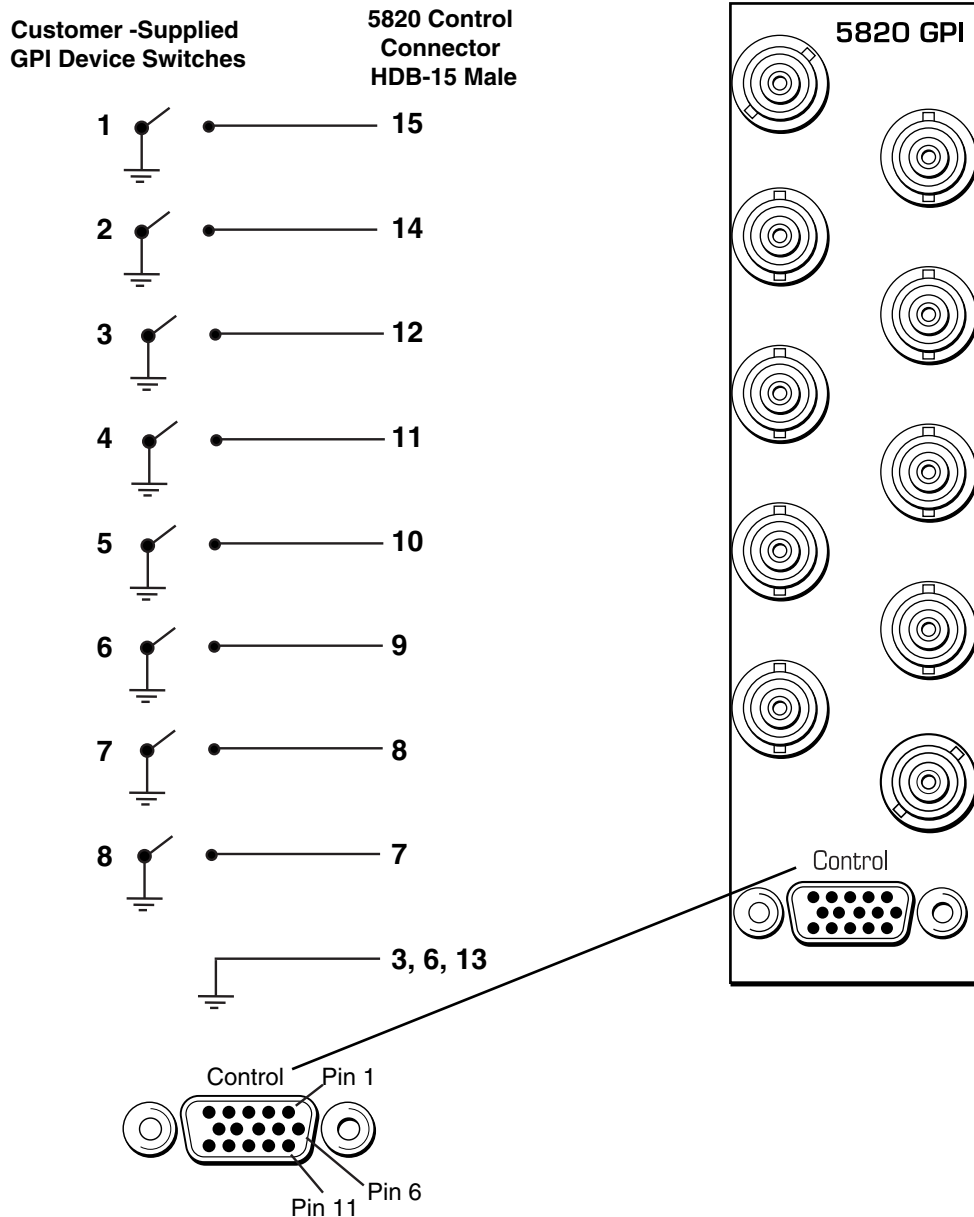


Only bolded pins are necessary for control panel communication, however, all pins may be connected.

GPI Control

An external customer-supplied GPI device can be connected to the **Control** connector on the rear of the 5820 module to trigger the GPI inputs by user-defined actions.

Connect the GPI control to the 5820 **Control** connector pins as shown below. Each GPI pushbutton should be wired with closure to ground to trigger a crosspoint. It can also simultaneously output status to light LEDs that are wired to ground as indicated in the diagram below.



MODULE CONFIGURATION AND CONTROL

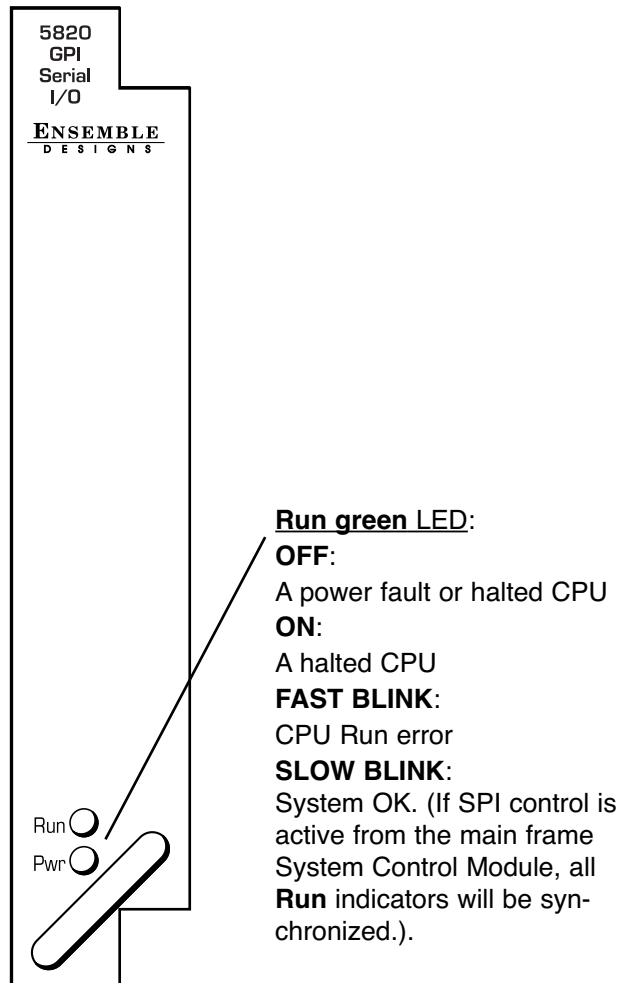
The eight GPI inputs on the 5820 module must be mapped to the Avenue modules to be controlled using the menus in the Avenue PC application or an Avenue Touch Screen Panel. Module status can also be read from the remote control menus or status is indicated by front panel LEDs. The module indicators are illustrated in the **Front Panel Controls and Indicators** section below.

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.

Front Panel Controls and Indicators

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



Avenue PC Remote Configuration

The Avenue PC remote control status menu for this module is illustrated and explained below. For more information on using Avenue PC, refer to the Avenue PC Control Application Software data pack that came with the option.

5820 Avenue PC Menus

There are eight GPI menus in the Avenue PC application, **GPI 1 – GPI 8**, one to correspond to each available GPI port. Set the parameters for each of the GPI inputs as follows:

- **GPI 1 – 8 Mode** – set to **On**, **GPI High** (GPI triggered by pulse going high) or **GPI Low** (GPI triggered by pulse going low).
- **Mem Reg** – select the memory register (1 – 5) on the corresponding module that has been configured for recall.
- **Frame Adr** – enter the AveNet address of the frame containing the module you wish to control.
- **Slot Number** – enter the **Slot Number** of the module in the selected frame.

A **Status** box shows the current status of the GPI port as **Off** (GPI turned off), **Connect** (5820 is successfully communicating with the module), or **Fail** (5820 cannot communicate with selected module).

The screenshot displays the configuration menu for GPI 1. At the top, there are tabs for GPI 1 through GPI 8, with GPI 1 selected. The configuration area is divided into several sections:

- GPI 1 Mode:** A dropdown menu currently set to "Off".
- Mem Reg:** A numeric input field set to "1", flanked by left and right arrow buttons.
- Frame Adr:** A numeric input field set to "1", flanked by left and right arrow buttons.
- Slot Number:** A numeric input field set to "1", flanked by left and right arrow buttons.
- Status:** A text box displaying "Off".

Avenue Touch Screen Remote Configuration

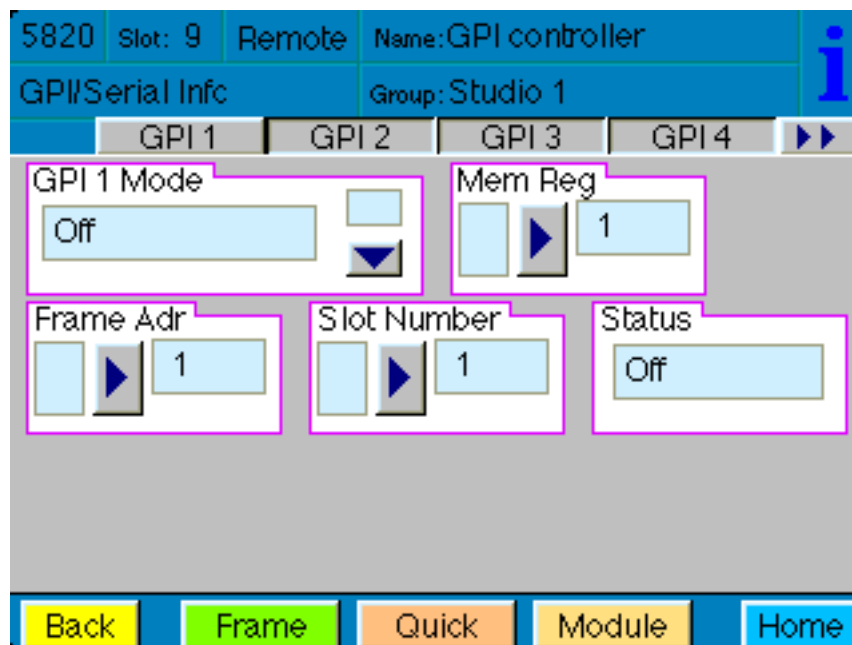
The Avenue Touch Screen remote control status menu for this module is illustrated and explained below. For more information on using Avenue Touch Screen, refer to the Avenue Touch Screen data pack that came with the option.

5820 Avenue PC Menus

There are eight GPI menus in the Avenue touch Screen Panel application, **GPI 1 – GPI 8**, one to correspond to each available GPI port. Set the parameters for each of the GPI inputs as follows:

- **GPI 1 – 8 Mode** – set to **On**, **GPI High** (GPI triggered by pulse going high) or **GPI Low** (GPI triggered by pulse going low).
- **Mem Reg** – select the memory register (1 – 5) on the corresponding module that has been configured for recall.
- **Frame Adr** – enter the AveNet address of the frame containing the module you wish to control.
- **Slot Number** – enter the **Slot Number** of the module in the selected frame.

A **Status** box shows the current status of the GPI port as **Off** (GPI turned off), **Connect** (5820 is successfully communicating with the module), or **Fail** (5820 cannot communicate with selected module).



TROUBLESHOOTING

As a troubleshooting aid, power and CPU status can be easily monitored from the front panel of this module using the indicators explained in the previous section.

The following status items can be monitored using the Avenue Touch Screen Control Panel or PC Application:

- Power status
- Slot ID, Software Version and Board Revision

Refer to the overall troubleshooting tips given below for the **5820** module:

No status lights are lit on front panel:

- Check that frame power is present (green LED{s} on frame power supplies).
- Check that module is firmly seated in frame. Try removing it and plugging it in again to make sure it is seated properly.

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.
- System module may not be working properly if installed.

You may also refer to the technical support section of the Ensemble or Graham-Patten web sites for the latest information on your equipment at the URLs 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

5820 GPI/Serial Interface

Input Signal:

Number: Eight GPI
 One RS-232/RS-422

General Specifications

Power Consumption: < 5.0 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
Setup: User Selectable

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