AVENUE

Avenue™ signal integration system

Model 7200 High Definition Digital to Analog Converter Data Pack

ENSEMBLE DESIGNS

Revision 1.1 SW v1.1.0

This data pack provides detailed installation, configuration and operation information for the **7200 High Definition Digital to Analog Video (DAC) Converter** 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 7200 module converts high definition (HD) serial digital video input into HD analog component video. Two sets of HD analog component video outputs are available. The following high definition formats are supported:

- 720p
- 1080i
- 1080p
- 1080sF

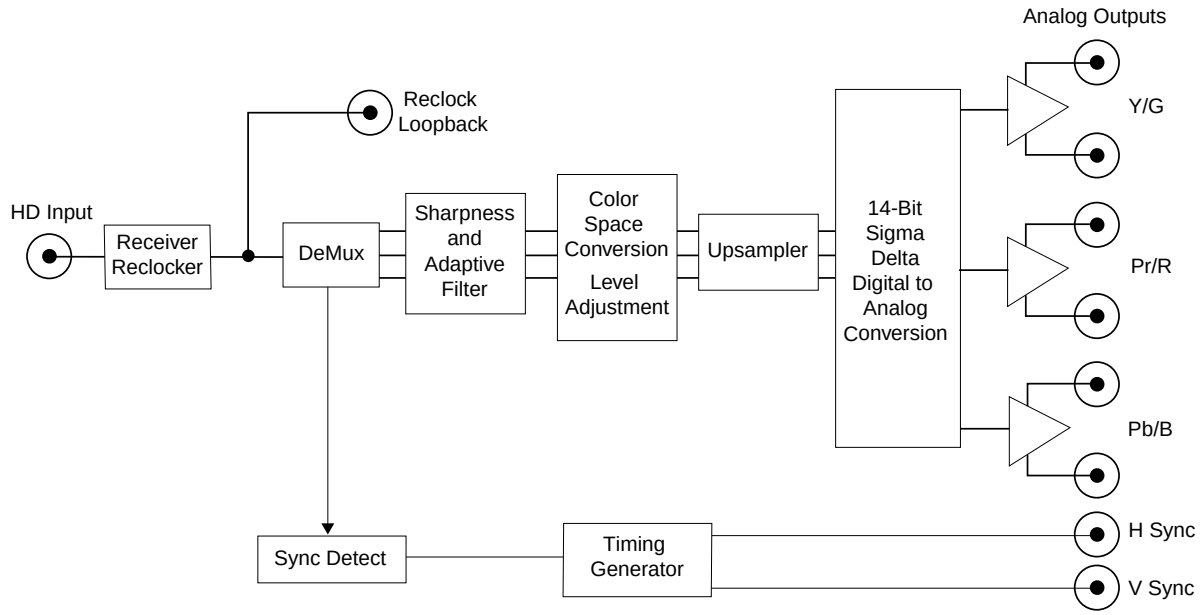
As shown in the block diagram on the following page, the HD serial digital input signal first passes through serial receiver and reclocking circuitry. Input HD format is automatically detected by the module. The reclocked signal is fed both to a loopback BNC on the rear of the frame and passes on to a demultiplexing circuit. The HD serial digital video is is demultiplexed to three video components and passes to the filtering section of the module. Sync information retrieved from the demultiplexer is also sent to a sync detector circuit then on the the timing generator where H and V Sync information if processed and can be accessed through rear BNCs.

The HD component video continues through color space conversion and proc amp level adjustment circuitry. The adjustments available include gain, chroma, and pedestal and are available from any Avenue remote control menu.

After upsampling, the component signals enter the 14-bit Sigma Delta Digital to Analog converter where extremely precise digital to analog conversion occurs. The HD analog outputs are selectable as Y/Pr/Pb, RGB, or SVGA (RGB – H/V). Each component passes through an output driver and is available on two sets of component outputs.

Power is derived from the ± 12 volt frame power. It is regulated to the required +5 volts for the digital circuitry and ± 8 volts for the analog circuitry by on-board regulators. The module is fused with a resettable fuse device. If the fuse opens due to an overcurrent condition, the module will lose power. After pulling the module, the fuse will reset automatically requiring no replacement fuse.

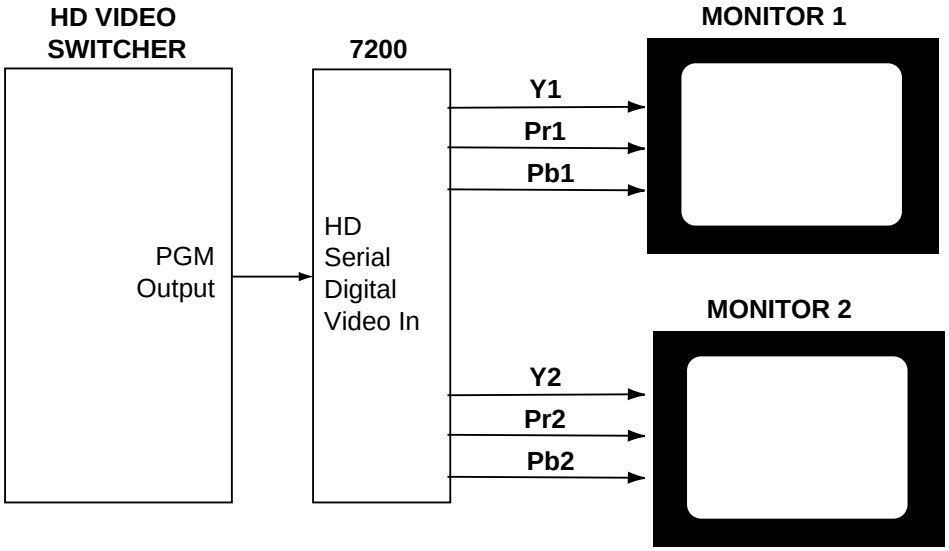
The on-board CPU can monitor and report module ID information (slot location, software version and board revision), and power status (+5 volts or ±8 volts) to the optional frame System Control module. This information can be accessed by the user or set to register an alarm if desired using the remote control options available.



7200 HD Digital to Analog Converter Functional Block Diagram

APPLICATIONS

The most common application for the 7200 module is for video conversion to feed HDTV and multiscan computer monitors as shown in the illustration below. Level adjustments for gain, chroma and setup can be made from any Avenue remote control option to optimize the component outputs on the monitor.



7200 HD Digital to Analog Converter Feeding HDTV and Multiscan Monitors

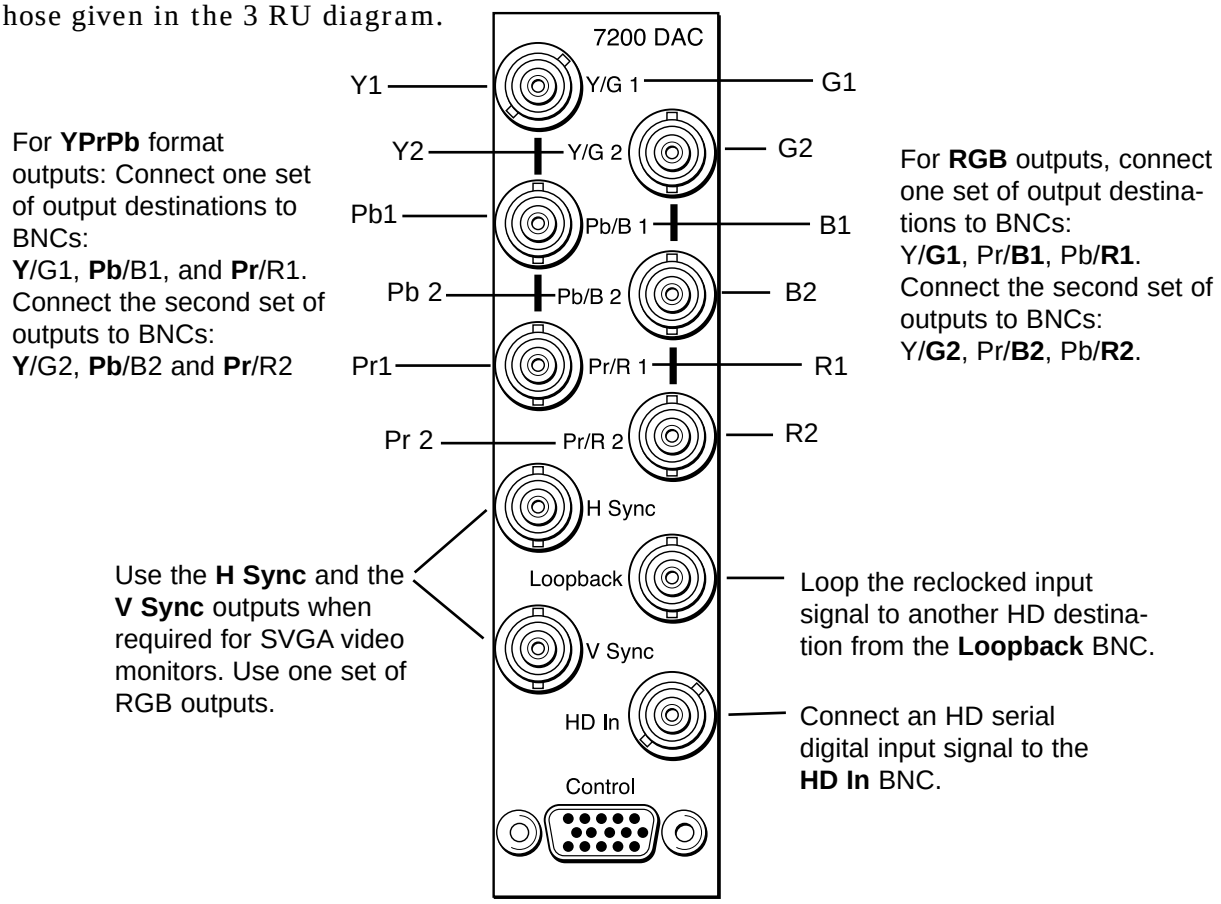
INSTALLATION

Plug the 7200 module into any slot 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.

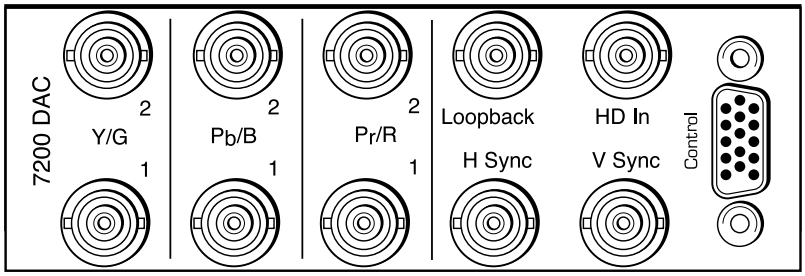
CABLING

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

3 RU Backplane



1 RU Backplane



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 control mode you will be using.

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 **7200 Parameter Table** below 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 **7200 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.

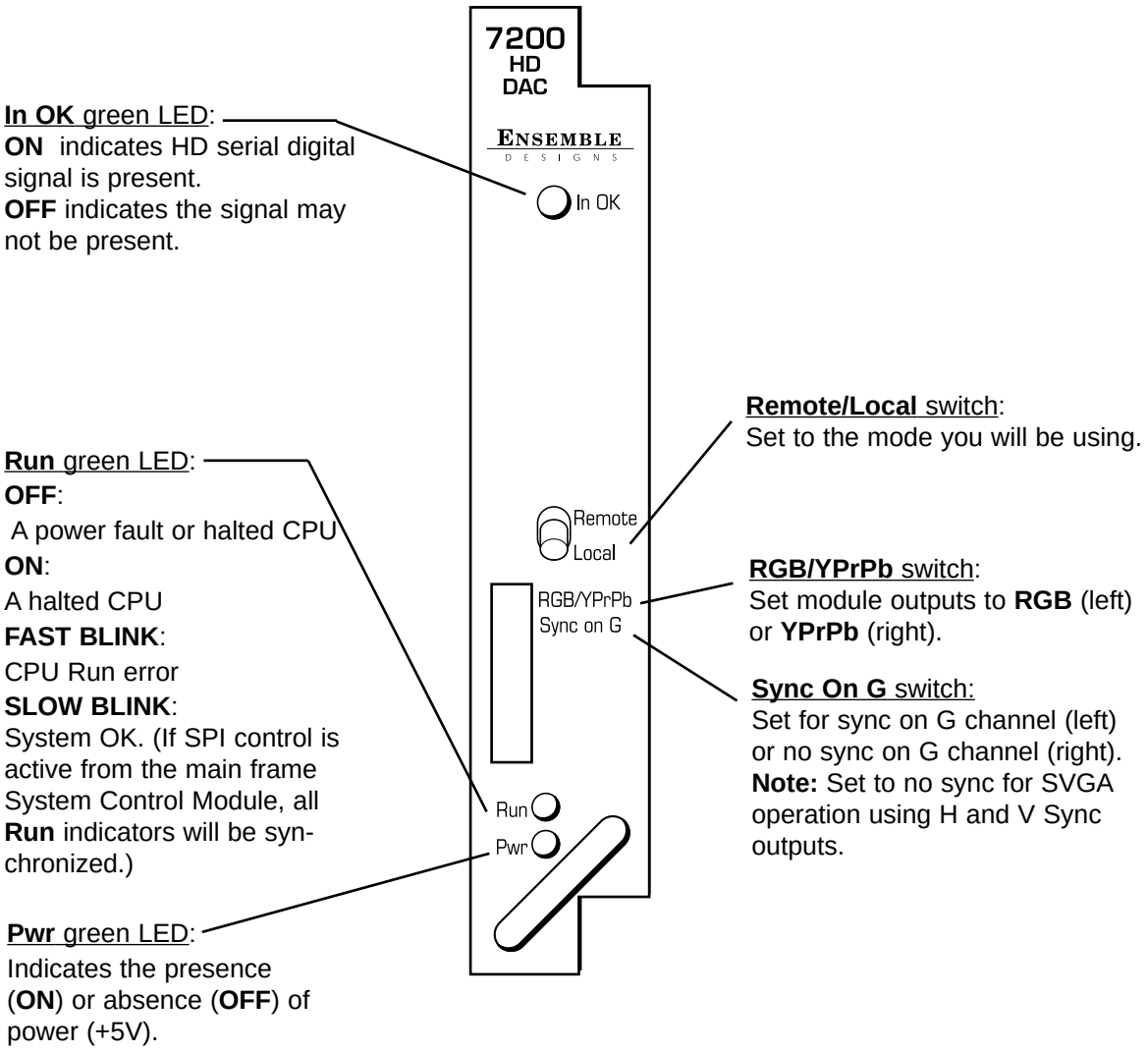
For setting the parameters remotely using the Avenue Touch Screen option, refer to the **Avenue Touch Screen Remote Configuration** section of this data pack following Avenue PC.

7200 Parameter Table

CONTROL	LOCAL	REMOTE	DEFAULT/FACTORY
Format	Switch 1: RGB YPrPb	Y Pr Pb RGB (Sync on Y) RGB No Sync	Y Pr Pb
Sync On Y	Switch 2: On Off	Set above	N/A
Gain	100%	80 – 120%	100%
Chroma	100%	80 – 120%	100%
Pedestal	0	-100 to 100 IRE	0

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 menus for this module are explained below. Refer to the **7200 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 that came with the option.

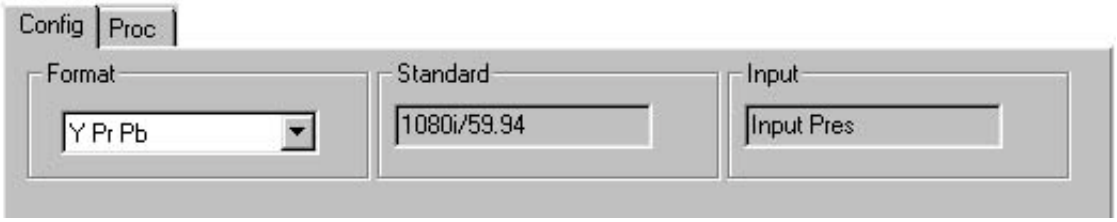
7200 Avenue PC Menus

In the **Config** menu, set the following parameters:

- **Format** – set the desired format for the module outputs.

The following status items are reported in the **Config** menu:

- **Standard** – shows HD standard input to module.
- **Input** – shows the status of the input signal.



The **Proc** menu allows adjustment of the following HD analog component video output parameters:

- **Gain** – adjusts the component output gain of all three channel outputs.
- **Chroma** – adjusts the amount of chroma gain on all three channel outputs (YPrPb only).
- **Pedestal** – adjusts the pedestal level of the output signal.

Avenue Touch Screen Remote Configuration

The Avenue Touch Screen remote control menus for this module are explained below. Refer to the **7200 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.

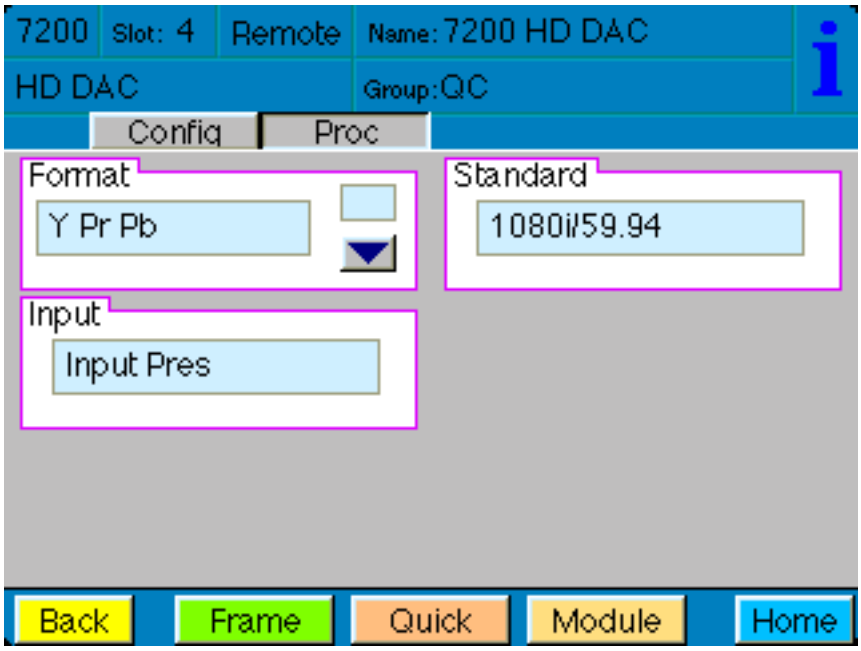
7200 Touch Screen Menus

In the **Config** menu, set the following parameters:

- **Format** – set the desired format for the module outputs.

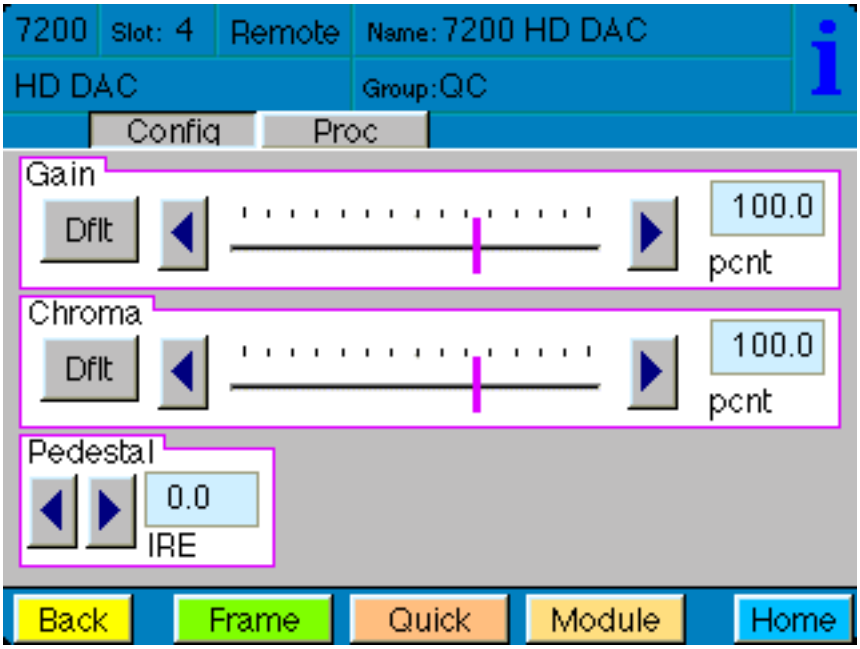
The following status items are reported in the **Config** menu:

- **Standard** – shows HD standard input to module.
- **Input** – shows the status of the input signal.



The **Proc** menu allows adjustment of the following HD analog component video output parameters:

- **Gain** – adjusts the component output gain of all three channel outputs.
- **Chroma** – adjusts the amount of chroma gain on all three channel outputs (YPrPb only).
- **Pedestal** – adjusts the pedestal level of the output signal.



TROUBLESHOOTING

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

If using the **Remote** mode, the following status items can be monitored using the Avenue Touch Screen Control Panel or PC Application:

- Input OK
- HD standard
- Power status
- Slot ID, Software Version and Board Revision

Refer to the overall troubleshooting tips given below for the 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.

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.

No signal out of module:

- Check status of **In OK** green LED. Should be lit. If not, check the input signal for presence and quality.
- Check cabling to input of module.

You may also refer to the technical support section of the Ensemble 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

7200 HD DAC

Input

Number:	One
Signal Type:	Serial HD
Impedance:	75 ohm
Return Loss:	> 15 dB DC to 1.5 GHz
Standard Supported:	1080i (SMPTE 274M – 4, 5, 6) 50, 59.94 or 60 Hz
	720p (SMPTE 296M – 1, 2, 3) 59.94 or 60 Hz
	1080p (SMPTE 274M – 9, 10, 11) 23.94, 24 or 25 Hz
	1080sF (RP211 – 14, 15, 16) 23.94, 24 or 25 Hz

Outputs

Number:	One
Signal Type:	Analog Component HD
Impedance:	75 ohm
Return Loss:	>15 dB
Output DC:	None (AC coupled)

General Specifications

Power Consumption:	< 7.0 Watts
Temperature Range:	0 to 40 degrees C ambient
Relative Humidity:	0 to 95% noncondensing
Altitude:	0 to 10,000 ft

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