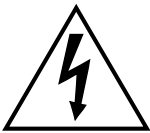
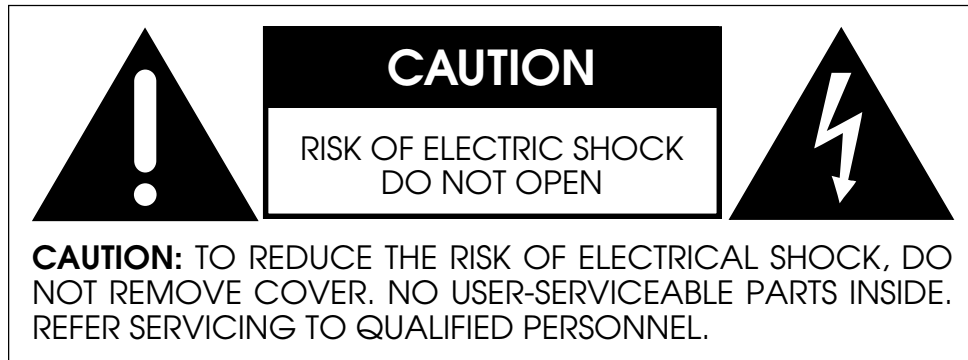


**Digital Surround Decoder**

**PROCEED**

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Marking by the “CE” symbol (shown left) indicates compliance of this device with the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards of the European Community.

---

#### NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna;
- Increase the separation between the equipment and the receiver;
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- Consult the dealer or an experienced radio/TV technician for help.

**CAUTION:** Changes or modifications to this equipment not expressly approved by the manufacturer could void the user’s authority to operate the equipment.

The information contained in the manual is subject to change without notice. The most current version of this manual will be posted on our web site at <http://www.madrigal.com>.

# Important Safety Instructions

Please read all instructions and precautions carefully and completely before operating your Proceed component.

1. **ALWAYS** disconnect your entire system from the AC mains before connecting or disconnecting any cables, or when cleaning any component.
2. This product is equipped with a three-conductor AC mains power cord which includes an earth ground connection. To prevent shock hazard, all three connections must **ALWAYS** be used. If your electrical outlets will not accept this type of plug, an adapter may be purchased. If an adapter is necessary, be sure it is an approved type and is used properly, supplying an earth ground. If you are not sure of the integrity of your home electrical system, contact a licensed electrician for assistance.
3. **ALWAYS** keep electrical equipment out of the reach of children.
4. AC extension cords are not recommended for use with this product. If an extension cord must be used, be sure it is an approved type and has sufficient current-carrying capacity to power this product.
5. **NEVER** use flammable or combustible chemicals for cleaning audio components.
6. **NEVER** operate this product with any covers removed.
7. **NEVER** wet the inside of this product with any liquid.
8. **NEVER** pour or spill liquids directly onto this unit.
9. **NEVER** block air flow through ventilation slots or heatsinks.
10. **NEVER** bypass any fuse.
11. **NEVER** replace any fuse with a value or type other than those specified.
12. **NEVER** attempt to repair this product. If a problem occurs, contact your Proceed® dealer.
13. **NEVER** expose this product to extremely high or low temperatures.
14. **NEVER** operate this product in an explosive atmosphere.
15. **ALWAYS** unplug sensitive electronic equipment during lightning storms.

# Table of Contents

<b>Maximizing the Value of Your Purchase</b> .....	<b>7</b>
send in that warranty card! .....	7
<b>Unpacking and Placement</b> .....	<b>8</b>
unpacking the digital surround decoder .....	8
re-labeling your PAV remote control .....	8
placement .....	9
ventilation .....	9
<i>serial number label</i> .....	9
update you PAV software .....	9
register your purchase! .....	9
<b>Operating Voltage &amp; Frequency</b> .....	<b>10</b>
warm up/break-in period .....	10
<b>A Word About Installation</b> .....	<b>11</b>
<b>A Quick Start For CD</b> .....	<b>12</b>
<b>A Quick Start For Laserdisc</b> .....	<b>13</b>
<b>Special Design Features</b> .....	<b>14</b>
hardware upgradable .....	14
software updatable .....	14
multichannel .....	14
audio computer .....	15
<b>Front Panel</b> .....	<b>16</b>
<b>Rear Panel</b> .....	<b>18</b>
<i>ac power cord polarity</i> .....	19
<b>Learning Remote Control</b> .....	<b>26</b>
installing batteries in the remote control .....	26
<b>Using The Menu System</b> .....	<b>32</b>
to enter the menu system .....	32
to exit the menu system .....	33
to select a menu item .....	33
to change a menu item .....	33
to save changes .....	33
to "escape" or "cancel" without saving any changes .....	33
front panel equivalents .....	33
<b>The Operate Menu</b> .....	<b>34</b>
display position .....	34
status preferences .....	34
display timeout .....	35
display of text .....	35
display background .....	35
volume display .....	35
volume speed .....	36
volume mute level .....	36
maximum volume .....	36
dialog normalization .....	36
auto migration .....	36
<i>forced/manual migration</i> .....	36
setup: locked/unlocked .....	36
<b>The Setup Menu</b> .....	<b>38</b>
set source buttons .....	39
example: setting up a cd transport .....	39

(continued next page)

renaming source buttons .....	40
defining the input type .....	40
choosing a surround mode .....	41
is it a recording device? .....	41
how many input connectors? .....	42
defining input connectors .....	42
example: setting up a laserdisc player .....	43
defining the video connection .....	44
defining multiple audio connections .....	44
set speakers .....	46
set configuration .....	47
<i>set configuration menu</i> .....	47
set distance .....	48
<i>set distance menu</i> .....	48
set levels .....	49
<i>set levels menu</i> .....	50
bass level manager .....	50
mode defaults .....	51
<i>before you use mode defaults</i> .....	52
<b>The Custom Menu .....</b>	<b>55</b>
teach IR commands to your remote .....	56
<i>remote only menu</i> .....	57
<i>surround, path and misc control menus</i> .....	57
control trigger 1 menu .....	58
control trigger 2 menu .....	59
rear ir input menu .....	59
changing the pav's ir address .....	60
<b>The About... Menu .....</b>	<b>61</b>
<b>Planning Your Installation .....</b>	<b>62</b>
choosing the equipment .....	62
planning your equipment placement .....	62
the "correct" size for your television screen .....	63
the power amplifiers .....	63
the left, center and right (LCR) front speakers .....	63
<i>toe-in of left &amp; right speakers</i> .....	64
the subwoofer(s) .....	64
the surround speakers .....	64
<i>dipolar surround placement</i> .....	65
<i>conventional surround placement</i> .....	65
working in unusually large rooms .....	65
<b>System Planning Guide .....</b>	<b>66</b>
video placement .....	66
electronics placement .....	66
speaker placement .....	66
additional notes on speaker placement .....	67
<b>Using PAV/PDSD .....</b>	<b>68</b>
setting the volume .....	68
home thx cinema® .....	68
dolby pro logic surround .....	69
stereo surround .....	69
mono surround .....	69
surround off .....	69
mono .....	69
automatic migration .....	70
forced/manual migration .....	70
watching a simulcast .....	70

(continued next page)

<b>Programming the Remote Control .....</b>	<b>71</b>
programming other components' functions .....	71
<i>teaching the PAV remote control new commands .....</i>	<i>72</i>
<b>Planning Your Remote Control .....</b>	<b>73</b>
the proceed bank: left .....	73
the proceed bank: center .....	73
the proceed bank: right .....	73
bank 2: left .....	74
bank 2: center .....	74
bank 2: right .....	74
<b>Your System Settings .....</b>	<b>75</b>
operate menu settings .....	75
cd 1 button defaults .....	75
cd 2 button defaults .....	75
tape 1 button defaults .....	76
tape 2 button defaults .....	76
bal/aux button defaults .....	76
tuner button defaults .....	76
vcr 1 button defaults .....	77
vcr 2 button defaults .....	77
laserdisc button defaults .....	77
tv/aux button defaults .....	77
low freq cutoff settings .....	78
set distance .....	78
set levels .....	78
bass level manager .....	78
mode defaults: discrete .....	78
mode defaults: pro logic .....	78
mode defaults: stereo surround .....	78
mode defaults: mono surround .....	78
mode defaults: surround off .....	79
mode defaults: mono .....	79
control trigger 1 .....	79
control trigger 2 .....	79
rear ir in .....	79
ir address .....	79
<b>Room Acoustics .....</b>	<b>80</b>
room reverberation .....	80
the boundary effect .....	80
room modes .....	81
<b>Troubleshooting .....</b>	<b>82</b>
<b>Care and Maintenance .....</b>	<b>84</b>
<b>U.S. and Canadian Warranty .....</b>	<b>85</b>
90-day limited warranty .....	85
five year extended warranty .....	85
<b>Obtaining Service .....</b>	<b>86</b>
<b>Specifications .....</b>	<b>87</b>
<b>Dimensions .....</b>	<b>88</b>
<b>Installation Notes .....</b>	<b>89</b>
<b>Proceed PAV/PDS System Quick Start... ..</b>	<b>90</b>

# Maximizing the Value of Your Purchase

Congratulations on choosing a superb product. Your Proceed Digital Surround Decoder (PDSD) is designed to give you many years of outstanding performance, and we are confident you will be happy with it.

We value our relationship with our customers, and often are in a position to help you enjoy your home entertainment system even more—*if* we have some way of contacting you.

## send in that warranty card!

Sending in your warranty card registers your product with us so that warranty service in the U.S. and Canada can be obtained easily and quickly even if you have lost your original sales slip. (*And how many of us are organized enough to retain all those sales slips?*) Moreover, for customers in the U.S. and Canada, sending in the card automatically extends the warranty from 90 days to five years, at no cost to you. (*See the warranty policy near the end of this manual.*) Please send it in soon, before you forget.

But there are even more benefits to sending in your registration card:

- ✓ software update notices
- ✓ performance upgrade notices

We occasionally offer software updates to our products, providing new features and control options. In the case of the Digital Surround Decoder, these updates are easily done without even opening up the unit, via flash-memory. If they include features you would like to have, you can get them—*if you know about them.*

We also try to offer hardware-oriented performance upgrades and/or conversions to make upgrading within a family of products as cost-effective as possible for our customers. With the extraordinary modularity of the Digital Surround Decoder, these upgrade modules are particularly easy to install and use. While not all upgrades can be inexpensive, we work to ensure that they all represent excellent values—*if you know about them.*

---

***So please, take a few minutes to fill out the warranty registration card, and drop it in the mail.***

---

# Unpacking and Placement

## unpacking the digital surround decoder

Unpack your Digital Surround Decoder and remove all accessories from the carton.



### **Important!**

---

***Keep all packing materials for future transport of your Digital Surround Decoder. Shipping your new component in anything other than its purpose-designed packing material may result in damage that is not covered by the warranty.***

---

## your new system remote control

The PAV/PDSD system uses a learning remote control that includes many new features and capabilities. Of course, it already has all of the codes it needs for controlling your PAV/PDSD combination, built in. However, you can teach it additional commands as well. In many cases everything in your system can be run from this one remote control.



### **Caution:**

---

***Your Proceed remote control also contains a lithium battery that maintains its memory in the absence of the alkaline batteries.***

***Installing a replacement lithium battery incorrectly may result in damage to the remote control and/or explosion of the battery. We recommend this be performed by the dealer.***

***This lithium battery must be replaced only with the same or equivalent type, and must be installed properly. Discard used batteries according to the battery manufacturer's instructions.***

---

## placement

Place the Digital Surround Decoder near the sources, thus keeping interconnecting cables reasonably short. It may be placed on a shelf or in a cabinet where it's convenient to operate.

*Note that adequate clearance for the AC cord and connecting cables must be left behind the Digital Surround Decoder. We suggest leaving at least three inches of free space behind the Digital Surround Decoder to allow all cables sufficient room to bend without crimping or undue strain.*

## ventilation

It is normal for your Digital Surround Decoder to run quite warm. Be sure to allow 2 to 3 inches of clearance above it to allow heat dissipation through air circulation. The vents on both the bottom and the top of the Digital Surround De-



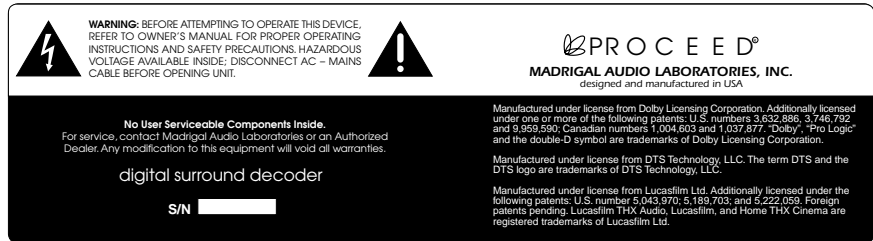
coder must be kept free from any obstruction which would reduce the flow of air through the unit. Avoid placement on soft surfaces that would restrict airflow (such as carpeting).

If your PDSB becomes too warm, it will display an on screen message to that effect. If the temperature continues to rise, the unit will eventually protect itself by shutting itself off. This eventuality is extremely unlikely unless its surrounding ambient temperature is uncomfortably hot for people (as well as electronics). An internal, temperature-controlled cooling fan kit may be ordered from Madrigal if you do see the on screen warnings about excessive temperatures, and if improving the available ventilation in the installation would be difficult. Contact your dealer or distributor for more information.

Drawings are included in this manual to facilitate special installations and custom cabinetry (see *Dimensions*).

The serial number for your Digital Surround Decoder is found on the bottom of the unit. Please note and record this number for your future reference.

*serial number label*



**update you PAV software**

The PDSB is shipped with an EPROM for the PAV with which it will be used. This EPROM allows the two components to work together as a single system. It must be installed in your PAV by your dealer. **Note that there are no user-serviceable parts inside either the PAV or the PDSB.**

**register your purchase!**

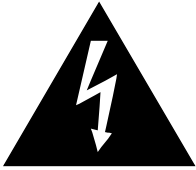
Having found the serial number, now would be a good time to fill out the registration card. Please register your purchase so we can advise you of software updates and other items of interest.

***In the U.S. and Canada, registering your purchase also automatically extends your warranty from 90 days to five years.*** It will take only a minute or so. Please complete the card now, before you forget.

# Operating Voltage & Frequency

The Digital Surround Decoder is set at the factory (internally) for 100V, 120V, 220V, 230V, or 240V and either 50 or 60 Hz AC mains operation, as appropriate for the country in which it is to be sold. (*230V/50Hz only in European Union countries, in compliance with CE regulations.*) Neither the voltage nor the line frequency setting may be changed by the user.

Make sure that the label on the rear panel of the Digital Surround Decoder (above the AC input receptacle) indicates the correct AC operating voltage for your location. Attempting to operate the Digital Surround Decoder at an incorrect voltage can damage the unit.



**Warning:**

---

***Neither the voltage nor the line frequency settings of your Digital Surround Decoder may be changed by the user. There are no user-serviceable parts within the unit. Please refer any problems to an authorized Proceed service center.***

---

If the AC mains voltage or frequency indicated on your Digital Surround Decoder is incorrect, please contact your local, authorized Proceed dealer or distributor.

The Digital Surround Decoder can easily be powered by a normal 15-ampere AC mains line. If other devices are also powered from the same AC line, their additional power consumption should be taken into account.

## **warm up/break-in period**

Although your Proceed Digital Surround Decoder delivers outstanding performance straight out of the box, you should expect to hear it continue to improve as it reaches its normal operating temperatures and its various components “break-in.” It has been our experience that the greatest changes occur within the first 300 hours as the PDS D reaches thermal equilibrium and the capacitors fully form. After this initial break-in period, the performance of your new product should remain quite consistent for years to come.

The only exception to this rule is if power is removed from the unit for an extended period of time, allowing it to cool down. Depending on the degree of cooling involved, you should expect a brief warm-up period before the Digital Surround Decoder’s sound quality is at its best. Unless your Digital Surround Decoder was allowed to become quite chilled, subsequent thermal re-stabilization should not take long.

# A Word About Installation

Every effort has been made to make the Proceed PAV/PDSD system simple and straightforward to install and use. Its flexibility allows it to solve problems that might otherwise compromise the performance of your system.

Unfortunately, we have no way to evaluate many other variables such as the size and shape of your room, its acoustics, and the associated equipment you have chosen to use with your PAV/PDSD. All of these factors influence the ultimate performance of your system. Moreover, the PAV/PDSD incorporates many system-specific adjustments which enhance its performance with the widest possible range of associated components.

---

***For this reason, we strongly encourage you to have your system installed and calibrated by your dealer, whose experience, training, and specialized equipment can make a profound difference in the final performance of the system.***

---

The PAV/PDSD features the ability to “remember” the carefully calibrated settings chosen by your installer. You may adjust any or all of these settings to suit your taste for a particular recording, either from the front panel *or* from the remote control. When you want to return to the calibrated settings (which most accurately reproduce the widest variety of program material), simply press **recall** on the remote control or on the front panel.

# A Quick Start For CD

The PAV/PDSD is an exciting system, and we understand that many owners will be anxious to get it up and running as quickly as possible. ***What follows is not a replacement for a complete setup of the system.*** Rather, it is provided so you can get some music playing from a single digital source as quickly as possible. It assumes that your system is already set up in other respects (*speakers connected to power amps, etc.*). Once done, please read up on how to do a complete setup and calibration in order to get the most from your investment (*or have your dealer/installer do it for you*).

## 1 MAKE THE PHYSICAL CONNECTIONS; TURN EVERYTHING ON

Connect the Communications Cable between the PAV and the PDSD; connect the outputs of the PDSD to your power amplifiers, as indicated (front, rear, center, sub); connect a CD transport to any matching digital input connector on the PDSD, noting which connector you use; ensure that the main video output of the PAV is connected to your television (so you can see the on screen menus). Once this is done, turn on all the components involved (CD transport, PAV, PDSD, television, amplifiers). Turn the amps on last (always a good habit with any audio system).

## 2 PRESS AND HOLD THE CD1 BUTTON ON THE FRONT OF THE PAV

This shortcut of pressing and holding an input button will take you directly to the **define button** menu for that button.

## 3 TELL THE SYSTEM WHICH CONNECTOR YOU USED FOR YOUR CD TRANSPORT IN STEP 1

We have no way of knowing what sort of digital interface your particular CD transport might use (AES/EBU? RCA? BNC? EIA-j?), but logically, you'd like to be able to use your main CD player with the button labeled **cd1**. This step allows you to use whatever connector you *need* to use in conjunction with the button you'd *like* to use. Using the **volume +/-** buttons, move the arrow cursor down to the line that defines your first audio connection (**1: Digital, Dig 1**) and press **enter**. Then move the arrow cursor down (**volume +/-**) to the line that defines which connector is being used, and press **enter** again. With the cursor changed to an **x** instead of an arrow, the **volume +/-** buttons will allow you to select whatever digital input connector you used in Step 1. When done, press **enter** again to save your change.

## 4 PRESS MENU TO EXIT THE MENU SYSTEM, AND ENJOY

Make sure the volume is on at a low level before you fire up your CD player; press the **cd1** button, and raise the volume to a comfortable level. According to the factory defaults (which you can easily change), **cd1** is preset to come on in 2-channel/surround off. You should properly calibrate the system so all speakers are playing at the proper volumes before you listen critically to multichannel audio. Performing this calibration only takes only a few more minutes, but you should read up on it a bit first. You can enjoy the PAV/PDSD system in regular stereo until then.

# A Quick Start For Laserdisc

Okay, so now you have some music to listen to while reading the manual. But you're in a rush to hear Dolby Digital on your new system. Remember: ***What follows is not a replacement for a complete setup of the system.*** We will assume here that you have already done the CD setup on the previous page. To get a laserdisc player playing:

## 1 MAKE THE PHYSICAL CONNECTIONS

If you have a **Dolby Digital (AC-3)** output on your laserdisc player and the **RF Demodulator** card in the PDSB, connect the AC-3 output to **digital input II** on the PDSB. Also connect the (normal) digital output of your LD to any matching digital input on the PDSB, noting which one you use. Connect the analog outputs of the LD to the laserdisc inputs of the PAV. Finally, don't forget to connect the video output of your laserdisc player to the corresponding input on the PAV. Turn everything on.

## 2 PRESS AND HOLD THE LASERDISC BUTTON ON THE PAV

This shortcut of pressing and holding an input button will take you directly to the Define Button menu for that button.

## 3 TELL THE SYSTEM WHICH CONNECTORS YOU USED FOR YOUR LASERDISC PLAYER IN STEP 1

Using the **volume +/-** buttons, move the arrow cursor down to the line that defines your video connection and press **enter**. Confirm that the video is connected to the laserdisc connector, and whether you used composite or S-video connections. Press **enter** to save any changes you might need to make, and then press **menu** to return to the previous menu.

Similarly, set up all three audio connections: move the arrow cursor down (**volume +/-**) to the line that defines your first choice, and press **enter** again. With the cursor changed to an **x** instead of an arrow, the **volume +/-** buttons will allow you to select **digital input II RF** (for example). When done, press **enter** again to save your change, and move on to your second choice (a digital input); then your third choice (the analog connection), saving changes as you go.

This hierarchy allows the system to automatically select the best available signal, by associating up to three different connections with a single button on the front panel of the PAV.

## 4 PRESS MENU TO EXIT THE MENU SYSTEM, AND ENJOY

Make sure the volume is on at a low level before you fire up your laserdisc player; press the laserdisc button once, and raise the volume to a moderate/comfortable level. **Important:** *you should properly calibrate the system so all speakers are playing at the proper volumes before you listen critically to multichannel audio.* Performing this calibration only takes only a few more minutes, but you should read up on it first. Please review the chapter on *The Setup Menu* for more information, pp. 39-55.

# Special Design Features

Congratulations on your purchase of the Proceed Digital Surround Decoder (PDS D). We have gone to great lengths to ensure that the PDS D remains “future-proof” even in these times of change. As a result, you will be able to enjoy the outstanding performance of the Digital Surround Decoder for many years. In case you are interested in technical details, what follows is a brief outline of some of the key technologies in your new product.

## hardware upgradable

The Digital Surround Decoder employs a ten slot backplane configuration. This means that various combinations of up to ten “cards” can be inserted into the back of the unit, and that they will all communicate with each other as needed without having to install jumpers or deal with point-to-point wiring. In fact, the Digital Surround Decoder is in many respects more “plug and play” than many computers that lay claim to the name.

The modularity of the Digital Surround Decoder ensures that the product can easily accommodate changes in the future that might require new hardware. For example, if the industry were to establish a new standard for digital interconnection, using a different physical connector, most products would be obsolete overnight; with the PDS D, you would merely slide a new module into a slot.

Mind you, we do not believe that you will have to change hardware anytime soon. We even went to the trouble of designing our own high bandwidth, programmable DIR (Digital Interface Receiver), the circuitry that actually receives a digital signal and determine “which bits go where.” We did this to ensure that the product you buy today can handle everything that a dedicated DVD-for-audio disc may offer in the future. You see, conventional DIRs cannot handle the full 10 Mb/sec data rate of DVD... but ours can. Moreover, our DIR actually reclocks the incoming digital signal to greatly reduce timing errors in the signal (jitter), making every source you connect to the Digital Surround Decoder sound better than it could otherwise.

## software updatable

All the software that the Digital Surround Decoder uses is stored in special “flash” memory that can easily be updated as improvements are made available. These improvements can affect both operational and performance enhancements.

For example, if a new, dedicated DVD-for-audio format is decided at some point, it may well have 24-bit, 96 kHz sampling rate data on it as well as traditional 16 bit, 44.1 kHz data (for backwards compatibility). With a simple software download a short time after such a standard is announced, your Digital Surround Decoder would be able to both decode and play back the new audio standard, *and* flip back and forth between the two versions of the music on the disc for comparison purposes.

The Digital Surround Decoder is designed to avoid the premature obsolescence that will be the hallmark of far too many products sold in these changing times.

## multichannel

The Digital Surround Decoder is designed to be flexible with respect to its audio configurations, as well. In its standard configuration, it provides the standard 5.1 channel selection of outputs made popular by home theater. However, it can

also be upgraded to an eight channel processor simply by inserting another card, whether to accommodate larger rooms or more sophisticated audio processing. It is just a matter of what you want the system to do. That way, you can have the system the way you want it to work, rather than the way we *thought* you'd want it to work. (After all, a no-compromise, high performance audio system should not be "one size fits all.")

Moreover, the PSDS was designed from the outset to be a *high end* multichannel product. *All* channels use full 20-bit multibit D/A converters rather than the less costly single-bit converters (often called "Sigma-Delta" or Delta-Sigma" converters) commonly found in multichannel products. The PSDS uses these more costly D/A converters for the simple reason that they sound better.

#### audio computer

Conventional audio DSP design requires the addition of costly hardware every time you wish to add functionality. In these designs, Dolby Digital (AC-3) has its own, dedicated DSP chip and associated supporting circuitry; so does DTS; so does MPEG. Want a new feature? Buy more hardware.

This strikes us as ridiculous.

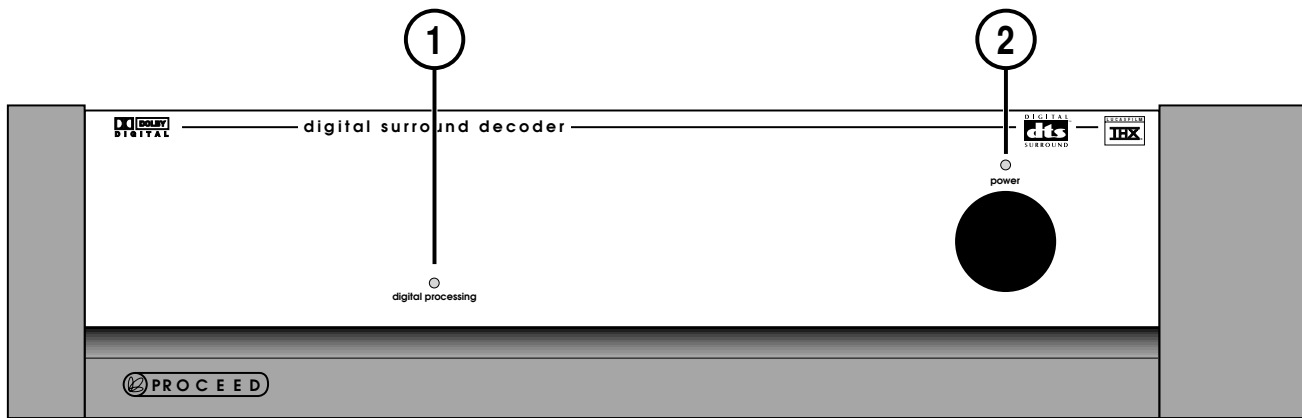
You would not buy a computer for writing, knowing that you would have to buy another computer for calculations, and another for graphics, and a fourth for database work. To do so would be enormously wasteful, as expensive microprocessors would sit idly while you were doing something else.

The same is true in "audio computers."

The Digital Surround Decoder is the first of a new generation of power DSP (Digital Signal Processing) engines that can load software in and out of memory dynamically, as your computer does. Want to listen to a Dolby Digital soundtrack? The PSDS loads the appropriate software and runs it. Movie over, want to listen to CD? No problem. Oh, the CD is DTS-encoded? Still no problem — the DTS software is loaded and runs automatically.

Madrigal was an early partner of Motorola in developing the next generation of DSP chips, the 56300-series. Designed to replace the aging 5600X series, these new chips offer twice the performance and vastly more flexibility. With three such chips in each Digital Surround Decoder, we have the power to run any of these programs as well as our own proprietary digital filtering algorithms.

Why did we develop such advanced technology? Simple: better performance for today, *and* for tomorrow.



## Front Panel

### 1 DIGITAL PROCESSING LED

This **digital processing LED** is normally completely **off** when an analog source has been chosen, indicating that no digital signal processing is even being attempted.

If the PDSB cannot communicate with the PAV (due to a forgotten communications cable, for example), the **digital processing LED** will **blink** to indicate that it is trying (but not succeeding) to communicate with the PAV.

The **digital processing LED** glows **red** when a digital signal has been selected, but cannot be “locked” onto and used. (Example: the RF output of a laserdisc player typically goes “dead” during scanning, chapter searches, and side changes, interrupting the signal and preventing the Digital Surround Decoder from doing what you have “asked” it to do.)

Finally, the **digital processing LED** glows amber when a digital signal has both been chosen and is being successfully received, indicating that digital processing is possible.

The Digital Surround Decoder will automatically and transparently decode **PCM** (including a digital version of **Dolby Pro Logic**), **Dolby Digital** (formerly called **AC-3**), **DTS Coherent Sound**, and **MPEG**, switching to whatever form of digital decoding and processing the signal requires. In any of these cases, the digital processing LED will glow amber to indicate that the Digital Surround Decoder is handling the signal for you.

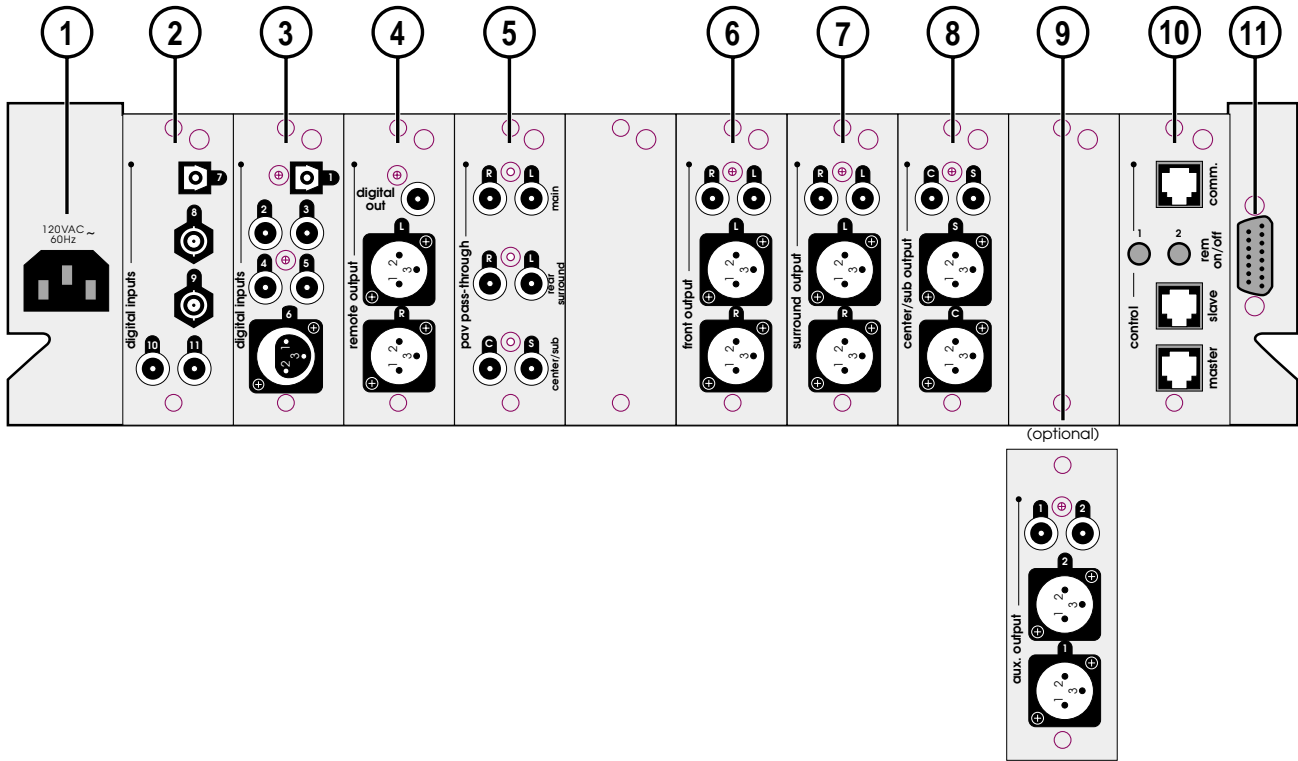
If you wish to learn which of these digital processes is active, press the **status** button on the remote control.



## 2 POWER & POWER LED

Assuming that the Digital Surround Decoder's power cord is connected to AC power, pressing this latching power button connects the PDS to the AC mains and turns on the unit. When power is restored after an interruption, the PDS will be ready to operate (that is, it won't be in **standby**), after a few moments' delay to allow its circuits to stabilize.

While the Digital Surround Decoder is in **standby**, the LED above the **power** button is red. When the Digital Surround Decoder is ready to **operate** (that is, when it is *not* in **standby** mode), this LED is amber. Naturally, when AC power is off, the LED is **off**.



## Rear Panel



### Caution!

**Disconnect all associated equipment from the AC mains BEFORE making any signal connections and applying power to the Digital Surround Decoder.**

### 1 AC MAINS INPUT

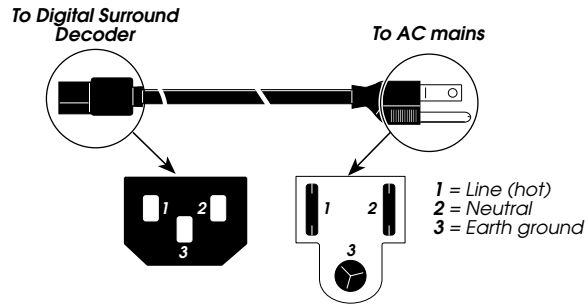
This input accepts AC power from the AC mains (via the supplied AC cable).



### Warning!

**The Digital Surround Decoder is set internally for 100, 120, 220, 230, or 240VAC mains operation at either 50 or 60Hz. Make sure that the label on the rear of the unit indicates the correct AC operating voltage and frequency for your location before connecting it to AC mains.**

Connect the female end of this cable to the Digital Surround Decoder. Connect the male end of this cable to wall outlet.

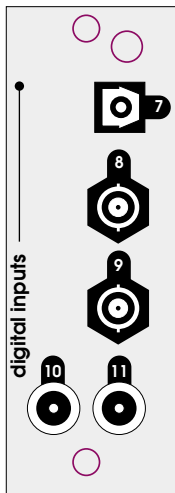


The power consumption of the Digital Surround Decoder is only about 100 watts, about the same as a light bulb. As such most people will leave it on (or in standby) at all times. If you elect to turn the PDSB completely off (rather than in placing it in standby), we advise waiting at least five seconds between power cycles to allow the normal power-up sequence to complete without interruption.

## 2 DIGITAL INPUTS 7-11

Please remember to make a note of what sources you connect to which inputs. You will need to set up the relationships between front panel buttons and rear panel connectors later, in the setup menu system.

For now, you can connect any source to any compatible connector—just keep a list of what-goes-where. (Just such a list is waiting for you later in this manual. You might want to copy it in order to keep the original clean for future use.)

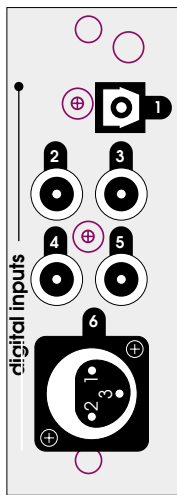


**Digital Input 7** accepts digital audio in the EIAJ optical (sometimes called “Toslink”) digital interface standard from a digital satellite receiver, compact disc, laserdisc, DVD or other digital source component. Connect the EIAJ digital output of your source component to the EIAJ input of the Digital Surround Decoder using a high quality EIAJ optical cable.

**Digital Inputs 8-9** accept digital audio conforming to the  $75\Omega$  s/PDIF digital interface standard (via  $75\Omega$  cables equipped with BNC-type connectors) from a digital satellite receiver, compact disc, laserdisc, DVD or other digital source component. Connect the  $75\Omega$  s/PDIF output of your source component to either of these inputs of the Digital Surround Decoder, using a high quality  $75\Omega$  cable such as Madrigal MDC-2.

**Digital Inputs 10-11** accept digital audio conforming to the  $75\Omega$  s/PDIF digital interface standard (via cables equipped with RCA-type connectors) from a digital satellite receiver, compact disc, laserdisc, DVD or other digital source component. Connect the  $75\Omega$  s/PDIF output of your source component to either of these inputs of the Digital Surround Decoder, using a high quality  $75\Omega$  cable such as Madrigal MDC-2.

If you have the **optional internal RF demodulator** installed in your Digital Surround Decoder, **Digital Input 11** is dedicated to that RF connection and can only be used for that purpose. Connect the RF (Dolby Digital/AC-3) output from your laserdisc player to Digital Input 11 if you have the internal RF demodulator installed, using low-capacitance cable such as CZ Gel-2.



### 3 DIGITAL INPUTS 1-6

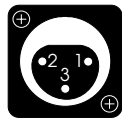
Please remember to make a note of what sources you connect to which inputs. You will need to set up the relationships between front panel buttons and rear panel connectors later, in the setup menu system. For now, you can connect any source to any compatible connector—just keep a list of what-goes-where. (Just such a list is waiting for you later in this manual. You might want to copy it in order to keep the original clean for future use.)

**Digital Input 1** accepts digital audio in the EIAJ optical (sometimes called “Toslink”) digital interface standard from a digital satellite receiver, compact disc, laserdisc, DVD or other digital source component. Connect the eiaj digital output of your source component to the EIAJ input of the Digital Surround Decoder using a high quality EIAJ optical cable.

**Digital Inputs 2-5** accept digital audio conforming to the  $75\Omega$  s/PDIF digital interface standard (*via* cables equipped with RCA-type connectors) from a digital satellite receiver, compact disc, laserdisc, DVD or other digital source component. Connect the  $75\Omega$  s/PDIF output of your source component to either of these inputs of the Digital Surround Decoder, using a high quality  $75\Omega$  cable such as Madrigal MDC-2.

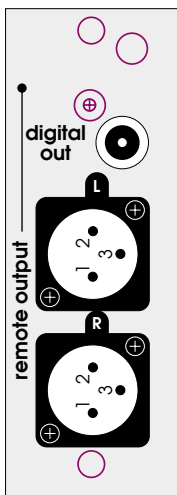
**Digital Input 6** accepts digital audio in the professional  $110\Omega$  AES/EBU digital interface standard (*via* a cable equipped with XLR-type connectors) from a digital satellite receiver, compact disc, laserdisc, DVD or other digital source component. Connect the AES/EBU digital output of your source component to the AES/EBU input of the PDSB using a high quality  $110\Omega$  AES/EBU cable such as Madrigal MDC-1.

The pin assignments of these AES/EBU XLR-type female input connectors are:



- Pin 1: Shield
- Pin 2: Digital + (non-inverting)
- Pin 3: Digital – (inverting)
- Connector ground lug: chassis ground

These pin assignments are consistent with the standards adopted by the Audio Engineering Society and the European Broadcast Union. Refer to the operating manuals of your digital sources to verify that the pin assignments of their output connectors correspond to the Digital Surround Decoder. If not, wire the cables so that the appropriate output pin connects to the equivalent input pin.



### 4 REMOTE OUTPUT (ANALOG & DIGITAL)

By connecting the balanced (analog) remote outputs in this module to the **bal/aux** input on the PAV, all PCM (normal digital, not Dolby Digital nor DTS) sources connected directly to the Digital Surround Decoder will be available for distribution to either the PAV’s **remote zone** or its **record path**. When you select (on the PAV) such a digital source for either the **remote zone** or the **record path**, the PDSB will pass that digital signal to this module, where it will be converted to analog and forwarded to the PAV, which will in turn send the signal out its appropriate analog outputs. **Note that sources such as AC-3 and DTS are not available at this two-channel analog output.** (They are, however, available in their original digital form at the digital output; see below.)

By looping the digital sources back through the PAV in this manner, the PAV can distribute either analog or digital sources to the remote zone or record path without your having to think about the details of where the signal originates.

The remote output module also includes a s/PDIF (on an RCA) digital output, should you wish to distribute a digital source in its original, unprocessed digital form. For example, if you had another multichannel system elsewhere in the home, you could forward a Dolby Digital bitstream to the other system from this one—running a single digital cable instead of five or six analog cables for surround sound applications.

**Note:**

***The digital remote output can forward only unprocessed digital sources to another zone or system. By their nature, analog sources would be excluded from this method of distribution unless they were first converted to digital form.***

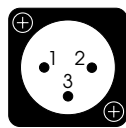
## 5 PAV PASS-THROUGH

You must connect the six main output channels of the PAV to their corresponding **paav pass-through** inputs on the Digital Surround Decoder. When listening to an analog source connected to the PAV, any signal processing will be done in the analog domain (in the PAV), and simply forwarded to the amplifiers *through* the PDSD. In this way, you can continue to enjoy the performance of the PAV with analog sources even while adding the capabilities of the Digital Surround Decoder for digital sources.

One benefit to this approach is that all *six* channels of the PAV are converted to balanced signals prior to being sent to the power amplifiers (contrasted with only two channels of the PAV being balanced when used by itself). Balanced interconnection between the PDSD and the power amplifiers can result in lower noise and better subjective performance, particularly when long runs of cable are required.

## 6 FRONT OUTPUTS

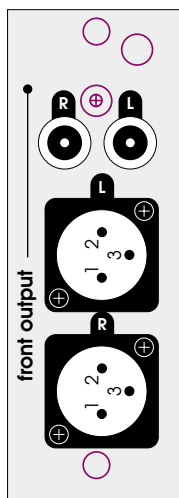
The pin assignments of these XLR-type male outputs conform to the international AES standard, and are as follows:

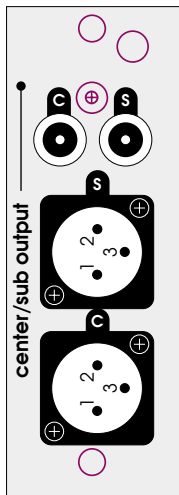
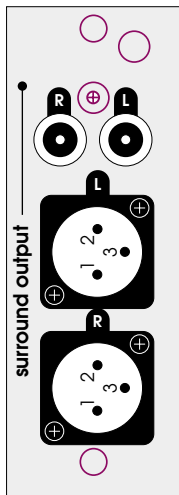


- Pin 1: Signal ground
- Pin 2: Signal + (non-inverting)
- Pin 3: Signal – (inverting)
- Connector ground lug: chassis ground

Refer to your power amplifier's operating manual to verify that the pin assignments of its input connectors correspond to the Digital Surround Decoder. If not, wire the cable so that the appropriate output pin connects to the equivalent input pin, or reverse the leads of *both* your speaker cables to “reverse the reversal” and restore correct polarity.

High quality single-ended outputs are also provided for compatibility with power amplifiers lacking balanced inputs.

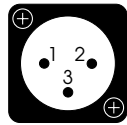




Connect the left-front and right-front outputs of the Digital Surround Decoder to the corresponding inputs on your power amplifier(s).

## 7 SURROUND OUTPUTS

The pin assignments of these XLR-type male outputs conform to the international AES standard, and are as follows:



- Pin 1: Signal ground
- Pin 2: Signal + (non-inverting)
- Pin 3: Signal – (inverting)
- Connector ground lug: chassis ground

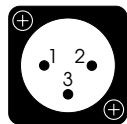
Refer to your power amplifier's operating manual to verify that the pin assignments of its input connectors correspond to the Digital Surround Decoder. If not, wire the cable so that the appropriate output pin connects to the equivalent input pin, or reverse the leads of *both* your speaker cables to “reverse the reversal” and restore correct polarity.

High quality single-ended outputs are also provided for compatibility with power amplifiers lacking balanced inputs.

Connect the left-surround and right-surround outputs of the Digital Surround Decoder to the corresponding inputs on your power amplifier(s).

## 8 CENTER/SUB OUTPUTS

The pin assignments of these XLR-type male outputs conform to the international AES standard, and are as follows:



- Pin 1: Signal ground
- Pin 2: Signal + (non-inverting)
- Pin 3: Signal – (inverting)
- Connector ground lug: chassis ground

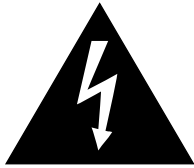
Refer to your power amplifier's operating manual to verify that the pin assignments of its input connectors correspond to the Digital Surround Decoder. If not, wire the cable so that the appropriate output pin connects to the equivalent input pin, or reverse the leads of *both* your speaker cables to “reverse the reversal” and restore correct polarity.

High quality single-ended outputs are also provided for compatibility with power amplifiers lacking balanced inputs.

Connect the center and subwoofer outputs of the Digital Surround Decoder to the corresponding inputs on your power amplifier(s).

## 9 AUX OUTPUT (OPTIONAL)

An additional two output channels may be added to the Digital Surround Decoder if desired. These channels are most commonly used for side speakers in addition to the rear speakers, though they can also be used in conjunction with Dual Drive™ surrounds, or to support stereo subwoofers. The “sides+rears” 7.1 channel arrangement is particularly beneficial in large rooms, as it ensures more uniform surround coverage throughout the listening area. Your dealer can install and set up these additional channels for you should you need them.



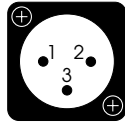
**Caution!**

---

***There are no user-serviceable parts inside the Proceed Digital Surround Decoder. Please contact your dealer for assistance if you need to swap modules in order to install this or any other option.***

---

The pin assignments of these XLR-type male outputs conform to the international AES standard, and are as follows:



Pin 1: Signal ground  
Pin 2: Signal + (non-inverting)  
Pin 3: Signal – (inverting)  
Connector ground lug: chassis ground

Refer to your power amplifier's operating manual to verify that the pin assignments of its input connectors correspond to the Digital Surround Decoder. If not, wire the cable so that the appropriate output pin connects to the equivalent input pin, or reverse the leads of *both* your speaker cables to "reverse the reversal" and restore correct polarity.

High quality single-ended outputs are also provided for compatibility with power amplifiers lacking balanced inputs.

Connect the left and right auxiliary outputs of the Digital Surround Decoder to the appropriate inputs on your power amplifier(s).

## **10 CONTROL/COMMUNICATIONS**

The Digital Surround Decoder provides for robust communications between components using this module. The uppermost **comm.** port is reserved for communications with the PAV, which provides the user interface (among other things) for the PSD. Connect a modular RJ-11 cable (supplied with the Digital Surround Decoder) between this port and the corresponding port on the PAV.



**Important!**

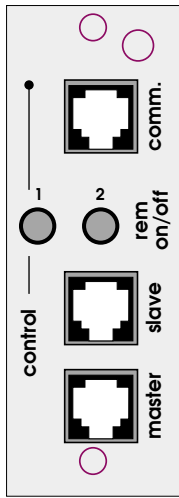
---

***If you are using a PAV that was built before early 1997, your dealer will need to perform a simple hardware update to your PAV prior to being able to use it with the Digital Surround Decoder. This update will provide the necessary physical connection at the PAV end.***

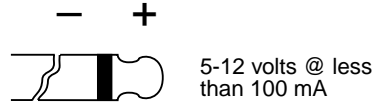
***If your PAV already has the communication port next to its power switch on the rear panel, then your dealer will need only to update its EPROM with the one that came with the PSD for it to work seamlessly with the Digital Surround Decoder.***

***There are no user-serviceable parts inside the Proceed Digital Surround Decoder. Please contact your dealer for assistance if you need to swap modules in order to install this or any other option.***

---



Each of the two remote on/off triggers can be configured by your installer to provide either 5V or 12V trigger signals, either in response to the PAV/PDSD system coming out of standby into operate, or in response to an independent IR command. The tip polarity for each of these triggers is as shown below:



These triggers provide some degree of control and automation over products that lack more sophisticated communications capabilities. For example, you could have one of these triggers toggle your amplifiers on and off according to the operational status of the PAV/PDSD combination, while the other served to lower the screen for your projection television when a particular IR command was received.

The remaining two communications ports at the bottom of the module provide for sophisticated inter-component communications between the PAV/PDSD system and future Proceed products. Your dealer can assist you in taking advantage of these advanced features.

## 11 DB-15 CONNECTOR

This DB-15 connector is reserved for future applications. *(After all, your Digital Surround Decoder will be in your system a long, long time...)*



# Using The Menu System

The PAV/PDSD combination uses a new, dynamically-updated menu system that operates more intelligently than most such systems. For example, when configuring inputs, the menu options change according to the selections you have made. In effect, the PAV/PDSD system only asks you for relevant information, thereby minimizing possible confusion.

Four buttons on the remote control are used to navigate through its extensive on screen menu system: **menu**, **enter**, **volume +**, **volume -**.

*note to PAV owners:*

---

*The menu navigation system used in the PAV/PDSD system is a bit different than the one you used on the PAV alone (we think it's improved), and it may take you a few minutes to adjust to the new way of doing things. Please take a moment to review this section before using the menus in your new system.*

---

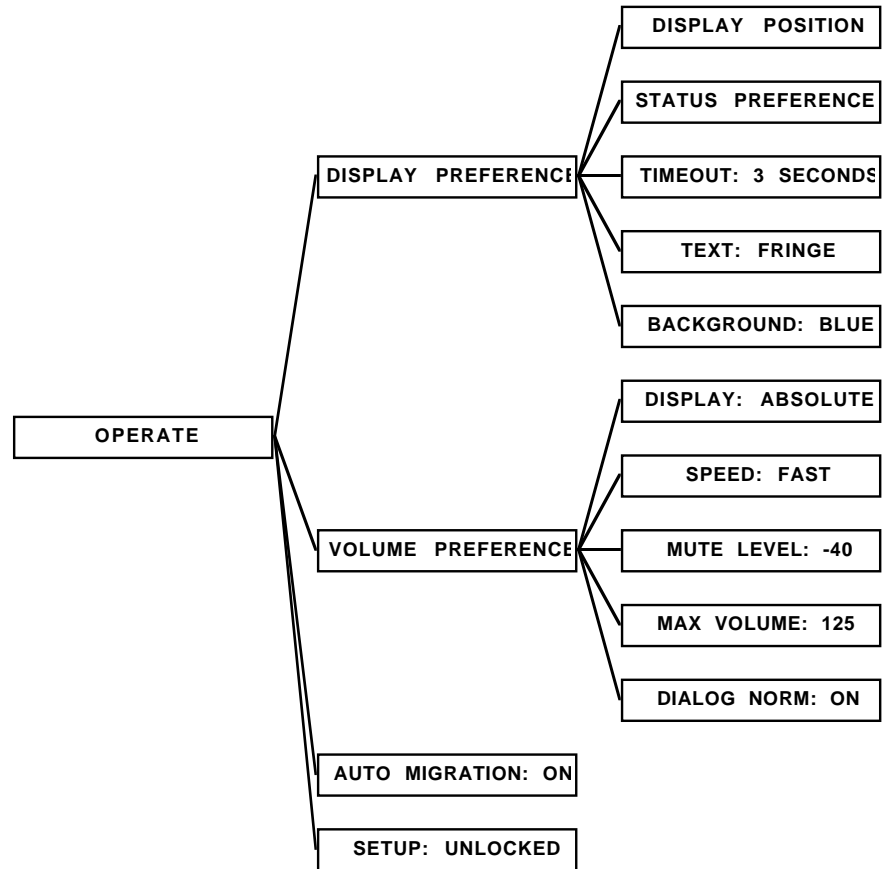
**to enter the menu system**

Pressing **menu** once will display the **PAV/PDSD Main Menu** of the on screen menu system. Note that the display on the PAV itself turns off when you enter the on screen menu system (to encourage you to look on screen, where the important information is). The main menu provides access to the three major function areas of the menu system:

- The **Operate Menu** is where user preferences are set. These items tailor the way the system interacts with you to suit your personal preferences, but do not effect the performance of the system in any substantive way.
- The **Setup Menu** is normally used only by the installer at the time of the initial system setup. Many of the items in this menu have significant impact on the actual performance and functionality of the system, and should be changed only by those who have taken the time to learn the way the system works.
- The **Custom Menu** is also used by your installer to customize your system even further. Whereas *every* system must be properly setup using the **Setup Menu**, the items in the **Custom Menu** are more rarely needed—as with systems that employ home automation, or to resolve potential infrared command conflicts between the PAV/PDSD and other components in your system. Once again, the items contained within this menu should be used/changed only by those who have taken the time to learn the way the system works (which you can do by reading this manual thoroughly, if you wish).
- The **About...** menu describes the various parts of the operating software being used by the PAV and the PDSD, and is used only as a reference should you ever need to call for technical support (so we can be certain that we are looking at the same operating software you are looking at when you use your system). You might want to copy these (somewhat arcane) numbers down in the **Your Settings** section of this manual for future reference.

<b>to exit the menu system</b>	<p>From the PAV/PDSD Main Menu, pressing <b>menu</b> again will exit the menu system. Since pressing <b>menu</b> (once within the menu system) also cancels current actions and moves you up one level in the menu hierarchy, you can leave the menu system by pressing <b>menu</b> repeatedly—no matter how “deep” you are within the system.</p>
<b>to select a menu item</b>	<p>Once within the menu system, an arrow indicates the currently-selected item on the menu. This arrow can be thought of as the “select-it” cursor. It can be moved up or down with the <b>volume +</b> and <b>volume –</b> buttons.</p>
<b>to change a menu item</b>	<p>Having selected the item you wish to work with, pressing <b>enter</b> will allow you to work with it.</p> <p>When changing the item in question can be displayed on the current menu screen, the “select-it” arrow cursor changes to a “change-it” <b>x</b> cursor. When the “change-it” cursor is displayed next to an item, using the <b>volume +/-</b> buttons will now increment or decrement the value of the item in question.</p> <p>Some of the changes called for by a particular menu item require more space than is available at the end of the current line. In this case, pressing <b>enter</b> still allows you to work with the item in question, by taking you to the next-lower screen in the hierarchy. A case in point: there are several display preferences you can modify to suit your needs, so pressing <b>enter</b> when the cursor is next to <b>display prefs</b> takes you to another screen that lists them in more detail.</p>
<b>to save changes</b>	<p>Having changed/edited an item, you can save your changes by pressing <b>enter</b> again. This both saves the change and returns you to where you were just prior to making the change (either changing back to the “select-it” cursor or moving up one level to the previous menu, as appropriate).</p>
<b>to “escape” or “cancel” without saving any changes</b>	<p>If you wish to cancel any changes you might have made, exiting the currently-modifiable menu item without saving any changes, simply press <b>menu</b>. This acts like the Escape key or Cancel button on a computer, and will return you to where you were just prior to making the change you decided not to save.</p>
<b>front panel equivalents</b>	<p>In a pinch, you may need to navigate the menu system as outlined above, but without using the remote control. (<i>An example would be when teaching the learning remote new commands, since it cannot both issue and learn commands at the same time.</i>) You can do this by pressing and holding the <b>recall</b> button on the front panel for about three seconds; this serves as a front panel equivalent of <b>menu</b> on the remote. Once in the menu system, the <b>recall</b> button on the front panel can be clicked (without holding it each time), and the menu will respond as though the <b>menu</b> button had been pushed.</p> <p>Once in the menu system, the front panel equivalents are:</p> <ul style="list-style-type: none"> <li>• <b>menu</b> = <b>recall</b> (to cancel an action, or move up a level)</li> <li>• <b>standby</b> = <b>enter</b> (to save a change and/or move up a level)</li> <li>• <b>volume +</b> = <b>volume +</b> (to move up in a menu, or increase a value)</li> <li>• <b>volume –</b> = <b>volume –</b> (to move down in a menu, or decrease a value)</li> </ul> <p>As with the <b>menu</b> button on the remote control, clicking <b>recall</b> on the front panel when the main menu is displayed will exit the menu system.</p>

# The Operate Menu



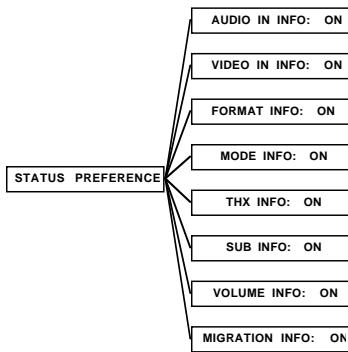
The **Operate Menu** gives you control over the way the system displays information and the details of how volume-related functions are handled. It also allows you to lock the setup settings (preventing access to the **Setup** and **Custom Menus**) to minimize the chance of unwanted tampering with settings that alter the way the system performs. In effect, the **Operate Menu** provides access to non-essential, preferential settings.

## display position

The displayed position of the on screen messages for volume changes, surround mode changes, etc., can be moved up or down to suit the needs of your system. This flexibility allows you to place your PAV/PDSD's on screen information where it won't conflict with other on screen information. As an example, you may want to place the on screen display in the black area under letterboxed movies.

## status preferences

The PAV/PDSD system can display a wealth of information about the source and nature of the signal being listened to, any signal processing going on, and other details about the operation of the system. By default, all of this information is displayed when you press the status button on the remote control. However, if you



find that this display is more than you need or want, you can turn off individual lines of the display in this submenu.

The information that can be displayed includes:

- audio in info (the source providing the sound)
- video in info (the source providing the picture)
- format info (the nature of the incoming signal)
- mode info (the surround mode processing being used)
- THX info (whether THX processing is engaged)
- sub info (whether one or more subwoofers is active)
- volume info (the current volume setting)
- migration info (whether automatic or manual migration is active)

Simply move the cursor to the **status preferences** line and press **enter**. Then move the cursor to whichever item you prefer to leave off, press **enter**, and turn it off with the **volume ±** buttons; then press **enter** again to save your change. You may, of course, turn anything back on at a later time by repeating the process.

**display timeout**

This setting controls the duration of these on screen messages generated by the PAV/PDSD when you change something. (*Remember that you can disable the on screen display entirely using the **on screen** button on the remote control.*) You can set it for 1, 2, 3, 4, or 5 seconds, according to your preference.

**display of text**

On screen messages are normally displayed with a black fringe around their white letters when superimposed on live video signals. This display method is easy on the eyes and almost always easily read. However, you can opt to have the on screen messages displayed within a black box to ensure legibility even against extremely bright backgrounds, when white letters might otherwise be difficult to read.

**display background**

The default **background** color for the screen when lacking a live video signal, or when in the menu system, is blue. This blue screen serves as a reminder that your television is on when in fact you may prefer to turn it off. However, some may prefer to leave their projection televisions on in order to keep them warmed up and ready to use, in which case a black screen might be more desirable. (A black screen would facilitate listening to music in a darkened room, for example, and saves unnecessary wear on the blue gun of the projector.) This menu item allows you to choose the best mode for your system, either blue or black.

**volume display**

You have the option of displaying your volume settings either of two ways:

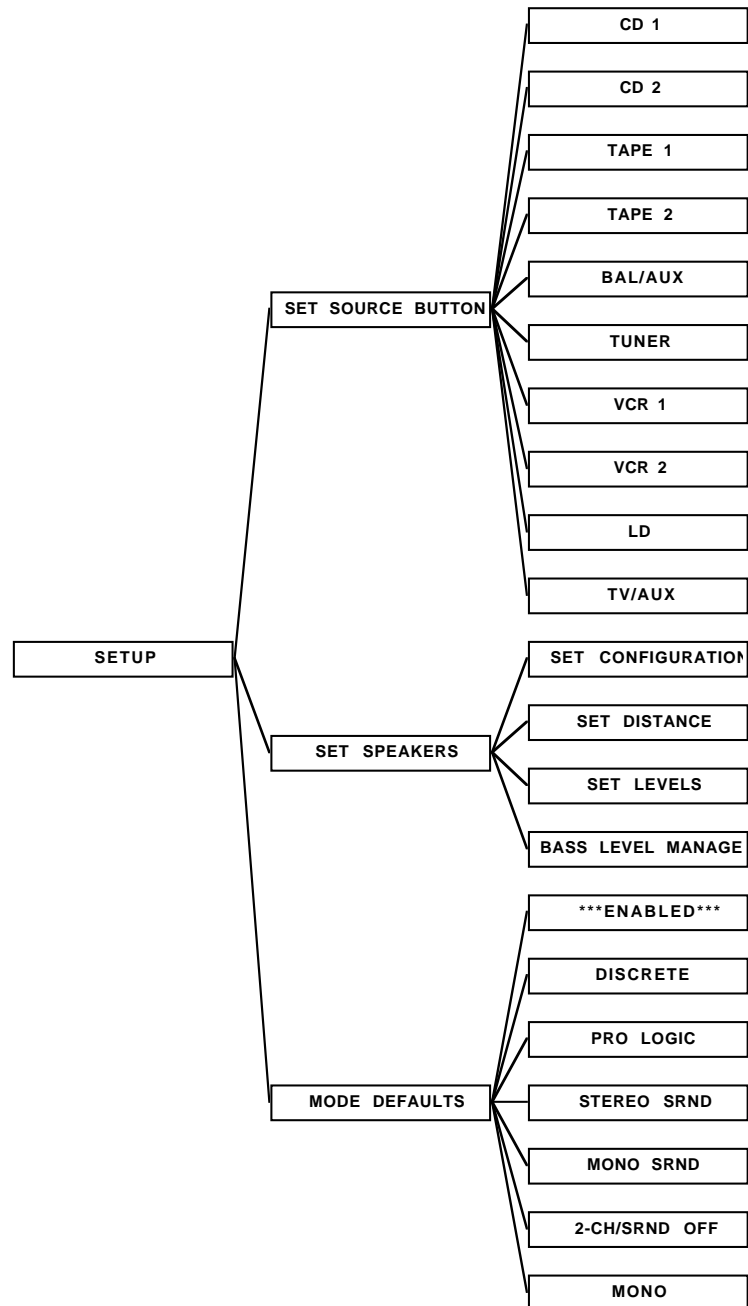
- **absolute**—on a scale of 0 (no sound) to 125 (*extremely* loud); or
- **relative**—on a scale which is measured plus or minus relative to the calibrated reference volume (established during calibration).

As an example, if your calibrated reference level is 91, the display would read 0 in the **relative** mode when it would read 91 in the **absolute** mode. Most people find **absolute** more intuitive, while some people find **relative** more informative. (For example, those who have made many recordings, and are accustomed to VU meters that read ± relative to a calibrated zero point may prefer the **relative** setting.)

<b>volume speed</b>	You may select either <b>slow</b> or <b>fast</b> response for the rate at which the volume change accelerates when pressing <i>and holding</i> the <b>volume +/-</b> keys. In all cases, single taps of the <b>volume</b> keys result in single incremental steps in volume. The <b>volume speed</b> chosen affects <i>the amount of time it takes to reach maximum speed</i> while holding the <b>volume +/-</b> button down.
<b>volume mute level</b>	The magnitude of volume reduction introduced by pressing the <b>mute</b> key is user-definable in increments of 5, from -5 to -120. The factory preset is for -40 (-20 dB). ( <i>Remember that each step in the volume control represents about 1/2 dB; thus a change of "5" represents a 2.5 dB change in volume.</i> )
<b>maximum volume</b>	You may set a <b>maximum volume</b> allowed for your system to minimize the opportunity for damage, either to your system or to better relations with your neighbors. Simply choose the maximum volume setting you would like to be able to use and save the change (by pressing <b>enter</b> , as always). If you decide to change it again, simply revisit this menu item and reset it.
<b>dialog normalization</b>	<p>Digital audio has a clearly-defined maximum recordable volume. In some movies, the dialog may exist fairly close to this maximum volume, especially if the movie does <i>not</i> have of loud noises that need occasionally to overshadow the dialog. Other movies are full of explosions and other effects that must be much louder than the dialog in order to achieve their desired effect. Thus the level at which dialog occurs within the overall digital dynamic range may vary significantly, requiring volume changes from one source to the next, or one movie to the next.</p> <p><b>Dialog normalization</b> takes advantage of the fact that Dolby Digital soundtracks are supposed to include information on the relative volume of the dialog. Using this information, we can automate this volume adjustment for you so that the dialog appears at approximately the same volume all the time. (Of course, this assumes that the movie's Dolby Digital soundtrack includes accurate information regarding dialog level.) This automatic volume change may be defeated if you prefer to handle such things yourself.</p>
<b>auto migration</b>	<p>As shipped from the factory, the PAV/PDSD system automatically tries to give you your "preferred" audio connection, whenever it is available. Thus if you have a Dolby Digital RF connection as your "first choice," followed by a normal digital connection, followed by the analog connection specified in your <b>set source button</b> screen for <b>laserdisc</b>, when you first select the input the system will start at the beginning of your list and work its way down your list until it finds a valid signal.</p> <p>If for some reason you prefer to handle such changes manually, you can turn off automatic migration in this section of the operate menu.</p>
<i>forced/manual migration</i>	Additionally, you can always <i>temporarily</i> engage manual migration simply by pushing the same input button repeatedly (which cycles through the connections associated with that button). As soon as you select <i>any other</i> input button, <b>automatic migration</b> will re-engage.
<b>setup: locked/unlocked</b>	Once the PAV/PDSD is completely setup, calibrated and ready to go, you may want to change this setting from <b>setup: unlocked</b> to <b>setup: locked</b> to make it

more difficult to accidentally disturb the carefully calibrated settings in the Setup and Custom Menus. Toggle the lock on and off by moving the “select-it” cursor to this item, changing to the “change-it” cursor by pressing **enter**, and pressing either **volume +** or **volume -** (with only two settings, either plus or minus will work). Then save your change by pressing **enter**.

# The Setup Menu



As you might surmise from the menu tree shown above, the Setup Menu is where you define what it is you are using with your PAV/PDSD system, and how you want it to work for you.

To take a common but surprisingly complex example, imagine:

- that you have a laserdisc player that has an RF Dolby Digital (AC-3) output, a digital output, and analog outputs;
- that you usually listen to it in THX cinema mode, whether using discrete digital soundtracks or Dolby pro logic soundtracks;
- and that you prefer to use a subwoofer for movies for the extra impact, but prefer *not* to use it when listening to music.

The **setup menu** is where you “explain” all this to the PAV/PDSD system, so that all you have to do when you want to watch a laserdisc is press the button labeled: **laserdisc**. The system can easily do everything else for you. It even figures out which of the three connections (AC-3, normal digital, and analog) it needs to use without you having to read the fine print on the back of the laserdisc jacket.

We’ll take each of the submenus in turn.

#### set source buttons

Each of the buttons on the front of the PAV may be associated with any of the audio (or video!) connectors on the rear of *both* the PAV and the Digital Surround Decoder. In fact, each button can be associated with a maximum of three audio connections (the AC-3 RF input if you have the RF demodulator, *plus* a digital input, *plus* a set of analog inputs on the PAV) and one video connection.

The reason for this extraordinary flexibility is that we want you to be able to use the button *that makes sense for each component*, regardless of the type of connector it may require. By manually associating whatever connector you **need** to use with the button you **want** to use, you can make the system work the way *you* want it to work.

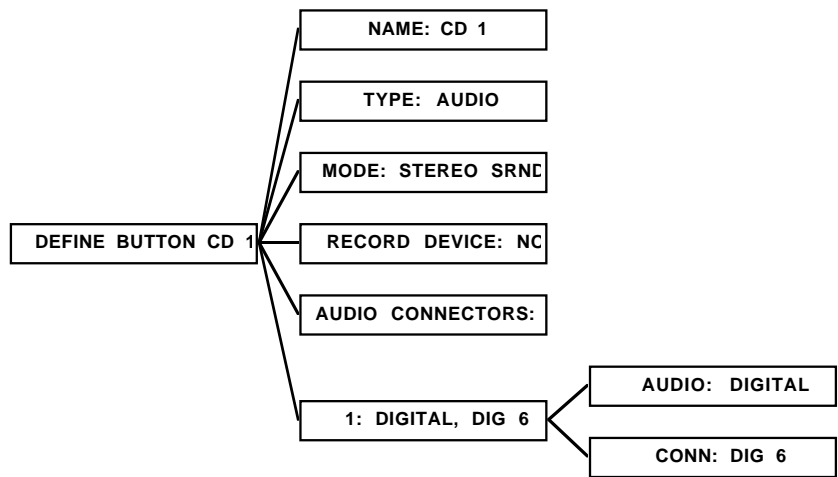
Moreover, we feel the system should handle the day-to-day details of sorting out RF AC-3, digital and analog software for you, rather than you having to read the fine print on each disc you own. By assigning more than one connector to a given button (as needed), the system can search for a usable signal rather than making you do it. It performs this task according to a list you give it during setup.

Thus, we give you a scrolling list of all ten input buttons, and give you the opportunity to tell the PAV/PDSD which connectors you would like it to use when you press that button. Your first connector is also your “first choice,” the priority connection; second choice is second priority; and third connector selection is the “last resort.” (That is, when there is nothing to listen to on the first and second choices.)

#### example: setting up a cd transport

A couple examples will help. With a simple CD transport, you might set up your default selections as follows:





### renaming source buttons

Your first decision: would you like the on screen display to identify your CD transport with something more specific than a generic **cd1** name? If so, enter the characters one at a time, up to a maximum length of eight.

#### 1 MOVE THE SELECT-IT CURSOR BESIDE "NAME:" AND PRESS ENTER TO ALLOW FOR CHANGES TO BE MADE.

A blinking box indicates the first available space for your new name. If you need to move it, press any PAV/PDSD button on the remote *other than* the usual four you use for navigating menus. The **path** button will do nicely, and is conveniently nearby on the remote control.

#### 2 USE THE VOLUME +/- BUTTONS TO SCROLL THROUGH THE LIST OF AVAILABLE CHARACTERS UNTIL YOU SEE THE ONE YOU NEED

This system works similarly to the titling feature on many camcorders. Available characters include the alphabet, all numbers, and various punctuation marks, including blank spaces for separating words.

#### 3 MOVE ON TO THE NEXT CHARACTER BY PRESSING ANY PAV/PDSD BUTTON ON THE REMOTE *OTHER THAN* THE FOUR YOU USE FOR NAVIGATING MENUS.

As before, the **path** button will do nicely, and is conveniently nearby. Pressing a button on the PAV/PDSD remote control that has nothing to do with the PAV/PDSD (a transport button, for example) will have no effect.

#### 4 REPEAT UNTIL YOU HAVE THE ON SCREEN NAME YOU WANT THE SYSTEM TO USE; WHEN DONE, PRESS ENTER TO SAVE THE NAME

As always, **enter** saves a change. If you get part way through the process of changing the name (or any other adjustment in the menu system) and change your mind, you can cancel your changes by pressing **menu**. This will leave the name unchanged from what it had been before you started.

### defining the input type

Next, you need to decide what kind of source you plan to use with this particular button: audio only, audio/video, or none at all. In the case of setting up your CD transport, this is pretty simple (and we'll keep it that way for now).

- 1 **MOVE TO THE “TYPE:” ITEM IN THE MENU, PRESS THE ENTER BUTTON, AND USE THE VOLUME +/- BUTTONS TO CHOOSE “AUDIO”; PRESS ENTER AGAIN TO SAVE THE CHANGE**

In reality, this is how the unit is shipped from the factory anyway, but while you are here you may as well see what your options are by using the **volume +/-** buttons to cycle through the choices. Choose **audio** before you finish up, or press **menu** to cancel without making any changes.

Had you chosen **a/v** rather than **audio**, the subsequent menu would have been updated to include video-related setup items. Since you don't need them here, they are not displayed. (We will get to that when we run through setting up a laserdisc player, a bit later.)

#### choosing a surround mode

The PAV/PDSD system also lets you choose a default surround mode that will automatically be chosen whenever you select this source. For example, if you find yourself using the **stereo surround** mode for most of your music listening, you can automate your preferences.

---

#### Note:

*These “surround modes” refer to what the system does when given a two-channel input signal, whether analog or digital.*

*Pro Logic is one such two-channel signal as it enters the Digital Surround Decoder, one that has been encoded to provide multiple channels when properly decoded.*

*Discrete multichannel signals (such as those provided by Dolby Digital, DTS, or MPEG/Musicam) will override these surround preferences and always be reproduced in their intended multichannel forms.*

---

If you already know what your preference is, you might as well program it in now. If you aren't sure, we suggest leaving the default surround mode for your CD transport as **stereo surround** for now. You can always change it later.

- 1 **MOVE TO THE “MODE:” ITEM IN THE MENU, PRESS THE ENTER BUTTON, AND USE THE VOLUME +/- BUTTONS TO REVIEW YOUR AVAILABLE SURROUND MODES; CHOOSE THE ONE YOU WANT AUTOMATICALLY ENGAGED; PRESS ENTER AGAIN TO SAVE THE CHANGE**

Of course, during day to day operation, you can easily override this default selection by simply pressing the **mode** button on either the remote control or the front panel at any time. Doing so will cycle you through the available (two-channel) surround modes.

#### is it a recording device?

If this component were capable of recording (a CD-R, tape deck, VCR, etc.), and assuming you wanted to make recordings through the system, you would need to make another connection to provide for making those recordings. Specifically, you would need to use one of the record outputs on the PAV to feed the recording device a signal to be recorded.

Moreover, the system needs to know which sources are hooked up in this way to ensure that you do not accidentally send a source back to itself to be recorded—a

situation that can produce unpleasant and even speaker-threatening feedback loops. For these reasons, we need to let the system know which of our sources are connected to a record output (*any* record output).

- 1 MOVE TO THE “REC OUT:” ITEM IN THE MENU, PRESS THE ENTER BUTTON, AND USE THE VOLUME +/- BUTTONS TO INFORM THE SYSTEM WHETHER A RECORD OUTPUT IS BEING USED WITH THIS SOURCE COMPONENT; PRESS ENTER AGAIN TO SAVE THE CHANGE**

Your choices are simple enough: **yes** and **no**. For a CD transport, you’ll probably leave it at **no**.

### how many input connectors?

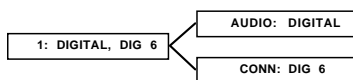
How many physical connections does this component require? (A stereo pair of analog signals is considered “one connection” for the purposes of this discussion.) In the case of a CD transport, the answer is easy. All you have is a digital output to accommodate, so the answer is one. A laserdisc player is the most complicated, since it might have three sets of signals: RF Dolby Digital (AC-3), normal (S/PDIF) digital, and a pair of analog outputs for the occasional old disc that has only analog soundtracks. (*This would be a pretty old disc, but they do exist...*) In this extreme case, you would need *three* sets of connections. We’ll come back to laserdisc later—for now, let’s stick with your CD transport, with its single connection.

- 1 MOVE TO THE “AUDIO CONNECTORS:” ITEM IN THE MENU, PRESS THE ENTER BUTTON, AND USE THE VOLUME +/- BUTTONS TO INFORM THE SYSTEM HOW MANY CONNECTIONS ARE NEEDED; PRESS ENTER AGAIN TO SAVE THE CHANGE**

As you work with the menu system a bit, the habit of pressing **enter** to work with an item and then pressing it *again* to save your work becomes second nature.

### defining input connectors

Once the PAV/PDSD system knows how many connections you need for this particular component, it updates its menu to provide for defining those connections. With only a single digital connection (for your CD transport), this is pretty simple. Just tell the system which digital input connector you used when you hooked up the CD transport.



- 1 MOVE TO THE “1:” ITEM IN THE MENU, PRESS THE ENTER BUTTON**

Since there are actually two things the system needs to know, and they would not have fit on a single line without confusion, you will be taken to the next-lower screen, which shows two items: **audio** and **conn** (short for “connector”).

- 2 PRESS ENTER AGAIN TO WORK WITH “AUDIO:” AND CYCLE THROUGH YOUR OPTIONS WITH THE VOLUME BUTTONS; CHOOSE DIGITAL AND PRESS ENTER TO SAVE**

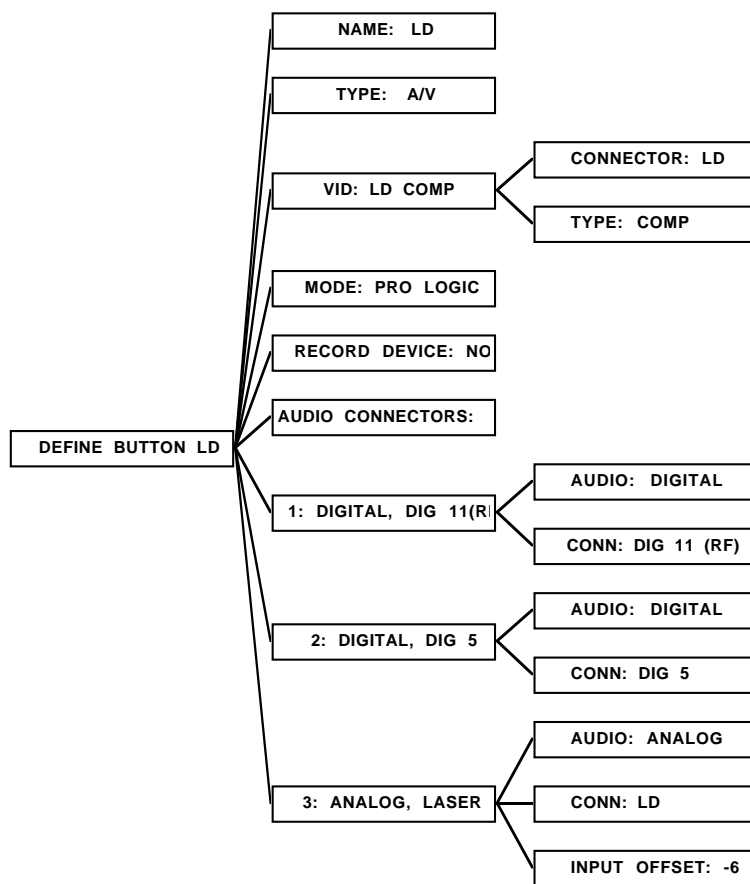
Once again, this is the factory default setting. Were you setting up a CD player that had only analog outputs, though, you would probably want to change this to **analog** and use a set of analog connectors on the PAV (**cd1** would be a good choice to avoid confusion).

**3 MOVE TO “CONN:” WITH THE VOLUME BUTTONS, PRESS ENTER TO WORK WITH IT, AND CYCLE THROUGH THE LIST OF CONNECTORS UNTIL YOU SEE THE ONE YOU USED; PRESS ENTER TO SAVE THIS SETTING, AND MENU TO RETURN TO THE PREVIOUS/HIGHER MENU**

As mentioned during the Quick Start for CD, you can connect any source component to any appropriate connector, and then simply tell the system what you have done. It is helpful to have written down what components are connected where during initial hookup, so you don't have to try to peer around the back of the system with a flashlight later. A form for this purpose is included at the back of this manual. (Use a pencil, in case something changes in the future.)

**example: setting up a laserdisc player**

A laserdisc player, as mentioned earlier, has several more connections that need to be handled than a simple CD transport. We will run through these additional settings next, without repeating the sections that remain the same.



(As a reminder, the path to the **define button ld menu** shown above is **main menu/setup/set source buttons/ld**—but you can get there faster by pressing and holding the **laserdisc** button for several seconds.)

## defining the video connection

The appropriate **type**: from the **define button Id** menu this time is **a/v**. After having selected it (or in this case when you reach this screen, since it is selected as a factory default for the **laserdisc** button), you will see an additional item immediately below **type**. The **vid**: item establishes which video connector you wish to associate with this button (in this case, **laserdisc**).

### 1 MOVE TO THE "VID:" ITEM IN THE MENU, PRESS THE ENTER BUTTON

Since there are actually two things the system needs to know, and they would not have fit on a single line without confusion, you will be taken to the next-lower screen, which shows two items: **connector** and **type**.

### 2 PRESS ENTER AGAIN TO WORK WITH "CONNECTOR ::" AND CYCLE THROUGH YOUR OPTIONS WITH THE VOLUME BUTTONS; CHOOSE "LASERDISC" AND PRESS ENTER TO SAVE

Once again, this is the factory default setting, so you probably don't actually have to do anything.

### 3 MOVE TO "TYPE:" WITH THE VOLUME BUTTONS, PRESS ENTER TO WORK WITH IT, AND CHOOSE EITHER COMP OR S-VIDEO ACCORDING TO WHAT YOU ACTUALLY USED; PRESS ENTER TO SAVE THIS SETTING

We strongly recommend choosing either composite or S-video and using your choice throughout the system. This greatly simplifies the operation of the system (since you no longer have to be switching inputs on your television every time you switch sources).

Now the system knows which video connector to look at when you press **laserdisc**. Next, let's move to the number of audio connectors. (You can change the surround mode default along the way if you like... but you already know how to do that.)

## defining multiple audio connections

The laserdisc has the greatest potential for confusion, having as it does *three* possible connections that may be needed. In addition, multiple versions of the soundtrack are often present on a single laserdisc requiring some sort of decision as to which should be used.

Ideally, the system would be able to *automatically* select the best available soundtrack and give it to you without your having to become involved personally in reading the fine print on the laserdisc jacket (and then pushing additional buttons) every time you watch a movie.

The PAV/PDSD system can provide this automatic searching for and selection of the best available soundtrack for you, according to priorities you establish during setup. In essence, you are about to describe the order in which you want the PAV/PDSD to look for signals, establishing your first, second and third choice. Typically, this will be RF (AC-3 discrete digital surround), normal digital (which might be a digital version of Dolby Pro Logic, DTS discrete digital, MPEG/Musicam, or ordinary two-channel digital stereo), and finally analog (if there is no digital signal available).

Let's get started.

**1 MOVE TO THE "AUDIO CONNECTORS:" ITEM IN THE MENU, PRESS THE ENTER BUTTON, AND USE THE VOLUME +/- BUTTONS TO INFORM THE SYSTEM HOW MANY CONNECTIONS ARE NEEDED; PRESS ENTER AGAIN TO SAVE THE CHANGE**

Choose 3 if you have an AC-3 RF output on your laserdisc player, 2 if you have only analog and digital outputs. Once the PAV/PDSD system knows how many connections you need for this particular component, it updates its menu to provide for defining those connections.

**2 DEFINE CONNECTOR "1:" AS YOU DID FOR THE CD TRANSPORT, USING YOUR FIRST CHOICE CONNECTION PREFERENCES FOR LASERDISC; SAVE YOUR CHOICES BY PRESSING ENTER**

If you have an RF (AC-3)-equipped laserdisc player and the Digital Surround Decoder's optional internal RF demodulator installed, these choices will probably be **digital** (vs. analog) and **dig 11 (RF)**. Otherwise, you probably have only two connections that need to be made, digital and analog; in this case, you'll want to choose **digital** and whatever input you used during hookup for your laserdisc player's digital output.

**3 REPEAT THIS PROCESS FOR YOUR SECOND CHOICE (2:) AND THIRD CHOICE (3:) CONNECTIONS AS NEEDED**

With three connections, your second choice will be digital, with the third choice being analog. If you chose to set up two connections (lacking an RF output), then your second connection will be your analog hookup. Choose **audio: analog** in the sub-menu, and then choose **conn: 1d** (presuming that's where you hooked up the analog connections from your laserdisc player). Save your choices by pressing **enter**.

**4 NOTE THAT YOU CAN SET UP AN AUTOMATIC INPUT OFFSET ON ANALOG SOURCES IN THE SUBMENU UNDER AN ANALOG CONNECTION; SET THIS NOW BY FOLLOWING STEPS 5-6**

This function is identical to that provided in the PAV when it is used as a stand-alone processor, and both minimizes volume changes as you switch from source to source, and maximizes the performance of the analog Dolby Pro Logic circuitry in the PAV.

**5 USING AN APPROPRIATE TEST SIGNAL ON THE SOURCE COMPONENT, ADJUST THE INPUT LEVEL OFFSET UNTIL THE REFERENCE LED IN THE MAIN DISPLAY JUST ILLUMINATES**

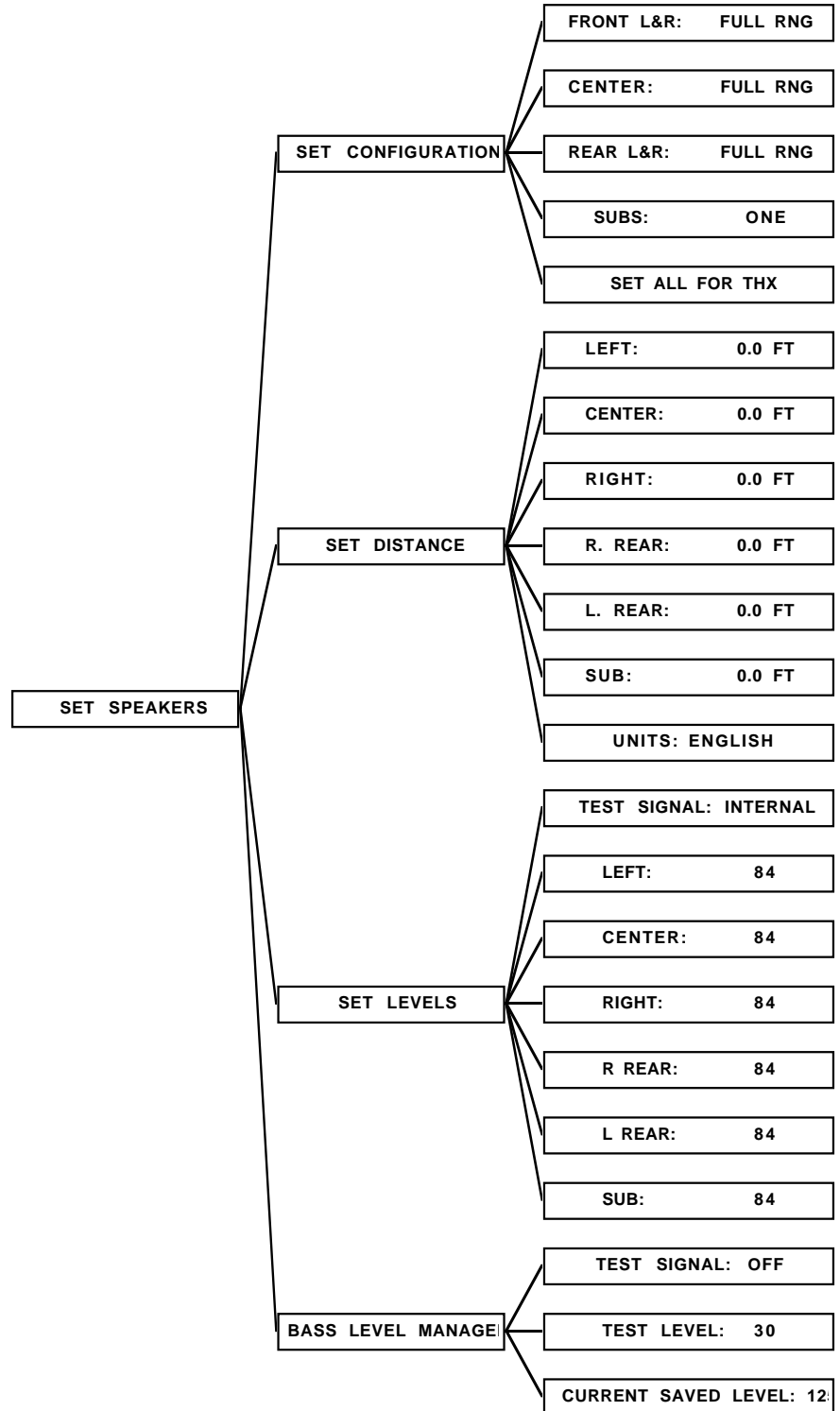
Appropriate test signals may be found on: Joe Kane's *Video Essentials*; Lucasfilm's *WOW!* laserdisc; Track 1 of the *Stereophile Test CD*; or copies of either of these sources made on your tape decks or VCRs. (Note that the meters of analog tape decks such as cassette decks should read -20 dB when recording and playing back this signal.) Using the **volume +/-** buttons, adjust the input level offset up and down as needed until you find the setting at which the **input level** LED on the PAV first illuminates.

**6 PRESS ENTER TO SAVE YOUR NEW DEFAULT INPUT LEVEL OFFSET.**

This setting will automatically be used whenever you select this analog input. You are, of course, still free to adjust it manually should you run across a recording which was made at an unusual level.

## set speakers

Having set up all of your sources, the next step is to tell the PAV/PDSD system more about the speakers it has in the system. This allows the PAV/PDSD to tailor its performance to the needs and capabilities of your loudspeakers, and affects:



- **set configuration:** informs the system whether or not the speakers need its internal crossover networks
- **set distance:** to time align the speakers, correcting for their various distances from the listening position (so sounds that are supposed to reach the listener at the same time actually do)
- **set levels:** to adjust the loudness of the speakers relative to each other to correct for differences in sensitivity, placement, etc.
- **bass level manager:** provides a convenient way to limit the amount of deep bass that might otherwise be sent to your speakers at high volumes (discrete digital soundtracks can sometimes be quite extreme in their deep bass requirements)

**set configuration**

This is where you tell the system which of your speakers can reproduce deep bass. Any low frequencies that are removed from a given channel will be divided between the speakers that can reproduce deep bass (subwoofers, plus speakers designated as “full range.” When you enter the **set configuration** menu, you will be presented with a screen that looks something like this:

*set configuration menu*

SET CONFIGURATION

```

➔ FRONT L&R:  FULL RNG
  CENTER:    FULL RNG
  REAR L&R:  FULL RNG
  SUBS:      ONE
  SET ALL FOR THX

```

The other options are **80 Hz** and in the case of the center and subwoofer channels, **none** (meaning there is no such speaker connected to the system).

*If you have an eight-channel system and have configured one of your auxiliary channels as a subwoofer channel, the **subs:** options expand to include: **summed** (both subs play the same signal), **L&R** (left and right), **F&R** (front and rear).*

**special tip:**

---

***If you have THX-certified speakers all around, a shortcut for setting the configuration to the THX standard is provided. Simply move your cursor to the bottom line and press enter. This will set the menus for all the appropriate crossover settings at one touch.***

---

If you do not have THX speakers, set an appropriate low frequency cutoff for each channel, and define how many distinct subwoofer channels you have in the PAV/PDSD system. (Note that multiple subwoofers reproducing the same channel are still considered *one* subwoofer channel.)

**1 ENTER THE SET CONFIGURATION MENU AND DEFINE HOW YOU WANT YOUR FRONT L&R SPEAKERS TREATED**

Using **enter** and the **volume +/-** buttons, choose either **full range** or **80 Hz**, as appropriate for your front left and right speakers. Save your selection (**enter**).



## 2 REPEAT THIS PROCESS FOR THE CENTER AND REAR SPEAKERS

Remember that you have an additional option with the center speaker of **none** (e.g., a phantom center channel).

## 3 DEFINE YOU SUBWOOFER(S) APPROPRIATELY AND RETURN TO THE SET SPEAKERS MENU

Depending on your hardware configuration, you may have the choice of either **one/none** or more extensive choices. (*see above*)

### set distance

In order to provide optimal performance, the PAV/PDSD system needs to know where your speakers are located relative to the primary listening chair. With this information, it can adjust the timing of the delivery of the various channels of sound so that sounds that are supposed to reach you at the same time actually do so—even though the speakers from which those sounds emanate may be at different distances from the listener.

By now you should be quite comfortable navigating the PAV/PDSD menus, so we will simplify the “how-to” explanations. If you are coming directly to this portion of the manual without having read the previous sections, please review those sections before proceeding. They contain important information you need to know about, in addition to detailing the menu navigation system. Try starting at *Using the Menu System*.

## 1 ENTER THE SET DISTANCE MENU

You will see a screen which should look something like the following:

### set distance menu

#### SET DISTANCE

→ LEFT:	0.0 FT
CENTER:	0.0 FT
RIGHT:	0.0 FT
R. REAR:	0.0 FT
L. REAR:	0.0 FT
SUB:	0.0 FT
UNITS:	ENGLISH

(If you prefer to use the metric system, move down to **units:** and toggle it from **english** to **metric**. The rest of the screen will then update to suit your preference.)

## 2 MEASURE THE DISTANCE FROM EACH SPEAKER TO THE MAIN LISTENING POSITION IN TURN; ENTER THESE DISTANCES INTO THE TABLE DISPLAYED ON SCREEN

Using a tape measure, measure these distances to the nearest 0.5 feet (or 0.2 meters). Use the **volume +/-** buttons to move the values up or down as needed; **enter** each as you go along.

### 3 MAKE A NOTE OF THESE SETTINGS UNDER “YOUR SYSTEM SETTINGS” IN THE BACK OF THIS MANUAL

Having these settings handy will prove helpful should anyone ever tamper with your careful calibrations. Of course, you should re-calibrate the system if you move the speakers or listening position significantly.

### 4 SAVE ALL YOUR CHANGES AND RETURN TO THE SET SPEAKERS MENU

Once you have each channel adjusted properly, press **menu** to return to the **set speakers** menu so you can continue the initial setup of your system.

#### set levels

The PAV/PDSD incorporates level controls for each channel. These allow you to compensate for differences in amplifier and speaker sensitivities, and for placement variations in different rooms. ***These adjustments are essential for re-producing proper soundstaging and image localization.*** Fortunately, they are normally a onetime adjustment during setup, and only need to be revisited if amplifiers or speakers change.

The simplest and best way to adjust the output level controls is by using an Sound Pressure Level (SPL) meter and the internal test tone generator. The goal is to set the volume at the primary listening position to read 75 dB SPL (C-weighting, slow mode) from *each speaker in sequence*, using the individual output level controls. An appropriate SPL meter can be purchased from Radio Shack for about \$30 (*tip*: buy the analog meter rather than the digital one). You should point the meter at the ceiling so as to avoid inadvertently favoring one speaker over another.

#### Note:

---

***If the test tones in Chapters 8-11 of the Lucasfilm WOW! test disc are used, the meter should read 85 dB SPL, since these tones are recorded at a level 10 dB higher than those generated by the internal generator. Also, if external analog test tones such as these are used, you must also be certain that the analog input level calibration has been done accurately prior to calibrating the output levels—see steps 4-5 of “defining multiple audio connections.”***

---

In the absence of an SPL meter, it is possible (though less desirable) to set the output level controls by ear. Use the built-in pink noise generator in the PDSD to adjust all volumes to sound the same as they cycle around the various speakers. (This signal is bandwidth-limited pink noise to limit the problem of timbre shifts influencing the setting of levels.) The system will then be reasonably well balanced, although of course it is not “calibrated.”

### 1 ENTER THE SET LEVELS MENU

Select **set levels** in the **set speakers** menu and press **enter**. You will then see a screen which should look something like the following:

## SET LEVELS

→ TEST SIGNAL : INTERNAL	
LEFT :	84
CENTER :	84
RIGHT :	84
R. REAR :	84
L. REAR :	84
SUB :	84

## 2 RAISE OR LOWER THE LEFT FRONT SPEAKER'S VOLUME TO 75 DB SPL AS MEASURED AT THE PRIMARY LISTENING POSITION

Select the left front speaker by moving the cursor to that line; you can then modify the setting by pressing **enter**. Use **volume +/-** to adjust the volume of that particular channel. Remember that you should be using the "C" weighting curve and the "Slow" ballistics of the SPL meter in order to get an accurate reading. Save your change by pressing **enter** again.

## 3 REPEAT THIS PROCESS FOR EACH SPEAKER IN TURN

Pressing **volume +/-** will move the cursor (and the test noise) on to the next speaker. When adjusting the subwoofer level, be sure to get up and walk all around the listening area, watching for the magnitude of the variations introduced by room modes at low frequencies. If more than 3-4 decibel variations are seen within the listening area, consider relocating your subwoofers for more consistent results. (See *Planning Your Installation* for specific suggestions on subwoofer placement.)

## 4 MAKE A NOTE OF THESE SETTINGS UNDER "YOUR SYSTEM SETTINGS" IN THE BACK OF THIS MANUAL

Having these settings handy will prove helpful should anyone ever tamper with your careful calibrations. Of course, you should re-calibrate the system whenever changing amplifiers and/or speakers, or when something has a noticeable effect on room acoustics (such as rearranging the furnishings).

## 5 SAVE ALL YOUR CHANGES AND RETURN TO THE SETUP MENU

Once you have each channel adjusted properly, press **menu** to return to the **set speakers** menu so you can continue the initial setup of your system.

### bass level manager

Some powered subwoofers have built-in protection against overload, or have amplifiers designed to be incapable of destroying the subwoofer driver itself. If your system enjoys this sort of protection, leave the Digital Surround Decoder's **bass level manager** at its maximum (effectively disabled) setting. After all, the speaker designer knows the limitations of his product better than either you or we can. It's best to let the speaker designer decide.

However, many subwoofers lack any protection against being overdriven other than your own discretion in using the volume control. While this discretion is always a good thing — if your system starts to sound distorted, "fuzzy" or garbled at high volumes, turn it down! — some people might prefer to have the system itself provide a measure of additional protection. This task falls to the **bass level manager**.

With the advent of discrete multichannel digital audio, it is possible to have six channels (or more) of information that contains deep bass frequencies. In many cases, the only speaker in the system that can reproduce deep bass is a single subwoofer. If one subwoofer is expected to do the work of six speakers, and the listener-controlled volume is turned up fairly high, it is easy to imagine the woofer being taken beyond its limits.

With the **bass level manager**, you are given an opportunity to establish a maximum volume beyond which you do not want the system to ask your subwoofers to go. If you are reasonably judicious with your main volume control during listening, you do not have to perform this adjustment at all. It is provided to give you the option of imposing an artificially low upper limit on bass transients (explosions, etc.), without affecting the perceived balance of bass at normal volumes.

## 1 ENTER THE BASS LEVEL MANAGER MENU AND CHOOSE TEST SIGNAL: ON

You have the option of setting the bass level manager volume level arbitrarily, without the benefit of listening to a test signal; or by listening to a low-frequency (bandwidth-limited) pink noise signal through the subwoofer(s). After experimenting with the bass level manager, you might want to reset it to its maximum setting (effectively disabling it). This would be best done *without* having to endure an extremely loud test signal (e.g., **test signal: off**).

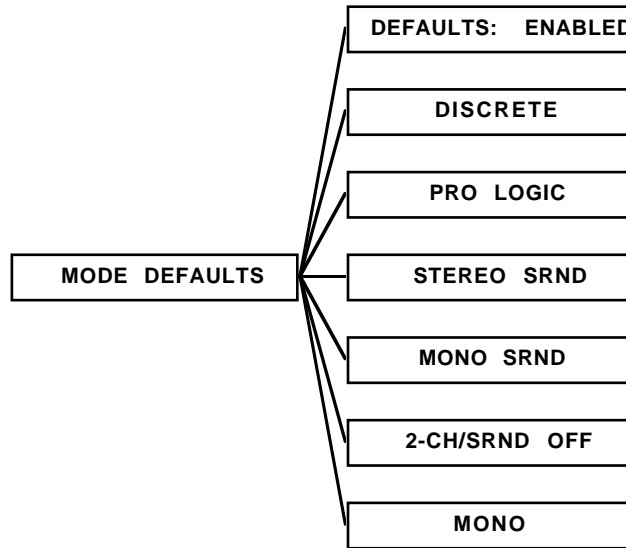
When you choose to use the test signal by changing **test signal:** from **off** to **on**, the low frequency test signal will be sent to your subwoofer(s) at a modest volume. Regardless of the previous setting, the initial setting of the bass level manager when you enter its menu is a low value of 30. This is done to avoid a sudden, potentially speaker-endangering level of the test signal being sent to your subwoofer(s).

## 2 RAISE THE VOLUME OF THIS TEST SIGNAL TO THE LOUDEST LEVEL YOU ARE LIKELY TO WANT TO HEAR FROM YOUR SYSTEM, BEING CAREFUL NOT TO OVERDRIVE YOUR SUBWOOFERS; SAVE THIS SETTING

This is a potentially tricky area, since you don't want to limit the performance of your subwoofers unnecessarily. At the same time, neither do you want to overdrive them during the calibration of the system! (One way out: have your dealer do the calibration, since he or she is more familiar with the capabilities of the speakers you purchased.) Save the setting by pressing **enter**, which also turns off the test signal and resets its next turn-on level to 30.

### mode defaults

The PAV/PDSD system also allows you to customize its default configuration for each surround mode. Although the most *accurate* reproduction will be achieved by leaving these adjustments disabled, their inclusion does allow you the option of tailoring the sound of various surround modes to suit your individual taste. For example, if you find yourself turning up the rear speakers whenever you watch a movie, and then turning them back down to their normal, calibrated setting for music, you may want to set the defaults for **pro logic** and **stereo surround** accordingly.



before you use mode defaults

*We recommend living with the PAV/PDSD system and using it in its calibrated settings for a while before changing these defaults. There is an adjustment period people go through when their system is upgraded during which it is difficult to make an accurate decision about sound quality. The best-known example of this is when someone first owns a high quality subwoofer: the tendency is to turn it up too loud initially (so one can “bear it”); as time goes by, most people find themselves gradually turning it down until it is adjusted to a more accurate level that blends appropriately with the rest of the system. Similarly, there is a tendency to exaggerate the bass and surround channels in surround systems before one adjusts to a high quality multichannel experience.*

Remember that *ad hoc* adjustments (to compensate for a poor recording, for example) on the system are easy to make. Simply touch the button for the speaker(s) you wish to adjust, and then raise or lower the volume. These offsets from the calibrated settings remain active until you change them again, or until you press **recall** to restore the PAV to its calibrated settings, or until you change inputs to listen to something else.

The surround mode defaults simply automate the manual process. For each of the surround modes of the PAV/PDSD, you may create default offsets for **center**, **rear**, and **sub** channels (as appropriate). The system will simply enter these default settings for you as it switches from one surround mode to the next. As always, you may alter these settings as you see fit from the front panel or from the remote control. You may also return to the calibrated (no offsets) setting by pressing **recall**.

In addition, you may elect to automate the **sub on/off** toggle described in the section *Programming the Remote Control*. (Briefly, this toggle switches between the speaker setup described in the **set speakers** menu and one in which the front speakers are given a full range signal and the subwoofer is turned off.)

To change the default offsets for your various surround modes, you must first enable this special feature for all surround modes, then alter each as you like:

### 1 FROM THE SETUP MENU, SELECT "MODE DEFAULTS" AND ENABLE THE FEATURE

After selecting **mode defaults** from the **setup menu**, you will see a screen that looks like this:

```
MODE DEFAULTS
→ DEFAULTS: DISABLED
```

You must first engage this feature by pressing **enter**, then **volume +/-** to toggle **\*\*\*DISABLED\*\*\*** to **\*\*\*ENABLED\*\*\***. Then you will see:

```
MODE DEFAULTS
→ DEFAULTS: ENABLED
DISCRETE
PRO LOGIC
STEREO SRND
MONO SRND
2-CH/SRND OFF
MONO
```

This extra step ensures that any automated changes of output levels are consciously chosen and therefore less likely to cause surprises. It also allows you to disable all the surround mode defaults in one easy step, should you decide at some future date to return to the calibrated settings for all your routine listening.

### 2 SELECT THE SURROUND MODE YOU WOULD LIKE TO MODIFY

For example, when you have selected the **discrete** mode (e.g., Dolby Digital, DTS, MPEG), you should see a screen that looks something like this:

```
DISCRETE
CENTER:          0
REAR:           0
SUB:            0
SUB MODE:      DEFAULT
THX:           OFF
```

Other surround modes may have fewer items, since only those adjustments that are appropriate to a given surround mode are displayed. Thus, **thx** is an option only on **discrete** and **pro logic**, and both **center** and **rear** are omitted on **surround off**.

### 3 ADJUST THE LEVEL OF CENTER, REAR AND SUB CHANNELS RELATIVE TO THE FRONT LEFT AND RIGHT SPEAKERS TO SUIT YOUR PREFERENCE

Using the **volume ±** buttons, move the cursor to the item you wish to adjust; press **enter**; then adjust the setting with the **volume ±** buttons. Save each setting as you go along by pressing **enter**.

**4 SELECT “DEFAULT,” “FORCE ON,” OR “FORCE OFF” AS THE SETTING FOR YOUR SUBWOOFER IN THIS SURROUND MODE**

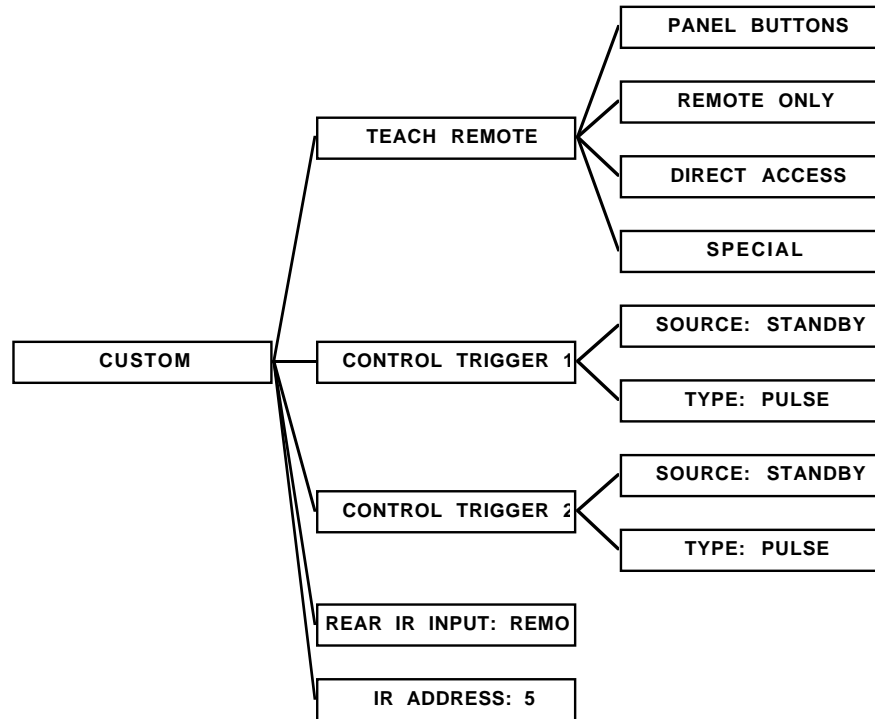
If you simply leave this setting as **default** for all your surround modes, the PAV/PDSD system will always use the default speaker settings from the **set speakers** menu.

If you prefer to *include* a subwoofer for movies and *remove* it when listening to music, you should **set speakers** for a biamplified system (80 Hz configuration settings), set the movie-related surround modes for **sub: force on**, and set the music-oriented surround modes to **sub: force off**. This way, your subwoofer will automatically be engaged or disengaged as you change between (for example) **discrete** and **stereo surround**.

**5 PRESS “ENTER” TO SAVE YOUR CHANGES; REPEAT FOR ALL OTHER SURROUND MODES AS NEEDED**

Note that if you change only a single surround mode, the others will remain at their factory default settings of no offsets and **sub mode = default**. This will cause even offsets entered at the front panel to be reset to all zeros when surround modes other than the one you changed are selected. (All the more reason to live with the system for a while before electing to customize it in this way. You should know your preferences with a fair degree of certainty before automating them to this degree.)

# The Custom Menu



If the **setup menu** is where you go in order to perform routine setups, the **custom menu** is the destination for unusual situations and needs. In many cases, these needs are the result of the requirements of a custom installation, one in which home automation equipment may figure heavily. For example, if you want to control your PAV/PDSD system from a centralized controller such as those from Audioaccess, AMX, AudioEase, Crestron, or PHAST, this is the place to come. In this menu you will find the specific functions you need for systems like these.

If you are the owner of the PAV/PDSD system (rather than a professional installer), this section is likely to be of little interest. It's the one section you should feel free to skip entirely. In it, we will cover:

- teaching new IR commands from the PAV to a learning remote control
- programming the two DC “trigger” outputs on the Digital Surround Decoder
- the use of the rear panel IR input
- changing the infrared logical address of the PAV/PDSD system to resolve IR code conflicts

In short, you have to be a bit of a gearhead to enjoy this section. Feel free to skip it if this sort of thing puts you to sleep.



## teach IR commands to your remote

If you inadvertently overwrite one or more PAV/PDSD commands in your remote control, never fear—you don't have to obtain another remote in order to relearn your own its PAV/PDSD-specific commands. The PAV/PDSD itself can send all of the necessary IR commands from its **main display** window, enabling you to teach the remote both its pre-programmed commands and a few other, optional commands which you might find useful.

When using the PAV/PDSD itself to teach new commands to your remote control, your remote will (obviously) have to be in its learning mode. Therefore, you must navigate the on screen menus by using the buttons on the front panel of the PAV. The buttons on the front panel you need to use are as follows:

- **recall**: the **menu** function is provided by the **recall** button. In order to activate the on screen menus rather than simply recalling the calibrated output level settings, *press and hold* the recall button until the front panel lights are turned off (about ten seconds). From this point on until you exit the menu system, the recall button will perform exactly as the menu button on the remote control would.
- **volume +/-**: the front panel **volume +/-** buttons also operate in the same fashion as their counterparts on the remote control.
- **standby**: the **enter** function is provided by the **standby** button on the front panel (when the PAV is in menu mode). It is deliberately set apart from all of the other menu-related buttons to make permanent changes of system parameters a deliberate act.

### 1 ENTER THE SETUP MENU

### 2 SELECT "CUSTOM," AND THEN "TEACH REMOTE"

Assuming you are using the Proceed remote, you should press the its recessed **use/learn** button until the **ready to learn** and **learned/sending** LEDs begin to blink. This prepares the remote to receive and learn a new command. (See *teaching the PAV remote control new commands* on page 73 and following.)

### 3 TO RELEARN THOSE FUNCTIONS WHICH HAVE CORRESPONDING FRONT PANEL BUTTONS, CHOOSE "PANEL BUTTONS"

The on screen display will prompt you to press any button. Line up the IR window of the PAV remote control with the center of the main display of the PAV, at a distance of approximately 6"-12". Select the to-be-learned button on the remote, then press the corresponding button on the PAV. Notice that a yellow LED in the main display lights up briefly after you press a button. This LED indicates that the PAV is transmitting the command which corresponds to the button you just pushed. You may repeat this process until all buttons have been learned.

To exit, *press and hold* the **recall** button (which serves as a **menu** button when you use front panel controls within the menu system).

### 4 TO RELEARN BUTTONS WHICH EXIST ONLY ON THE REMOTE CONTROL, CHOOSE "REMOTE ONLY"

From the **teach remote** menu, select **remote only**. The on screen display will now look something like this (see next page):

REMOTE ONLY MENU

- ENTER
- DISPLAY
- ON SCREEN
- THX
- STATUS
- LATE NIGHT

Press the appropriate button on the remote control (while in learning mode), and then use the front panel **standby** and **volume +/-** buttons to select and “fire” the appropriate IR command from the **main display** of the PAV into the remote control. Repeat as necessary.

**5 TO LEARN COMMANDS THAT GIVE DIRECT ACCESS TO SURROUND MODES, SIGNAL PATHS, AND POSITIVE CONTROL OVER TOGGLE FUNCTIONS, SELECT “DIRECT ACCESS” ON THE TEACH REMOTE MENU**

You may also teach special commands to the PAV remote control which allow direct access to the various surround modes, signal path and control options. These may be assigned to any available button on the PAV remote control, such as the **a, b, c, d** buttons.

For example, you may find that you use the **pro logic, stereo surround** and **surround off** modes most frequently. You could assign a button to each of these and never have to cycle through the other options again. Alternatively, you could assign specific output paths to the **a, b, c,** and **d** buttons to allow direct access from the remote control. Another: definite “on” and “off” commands for **standby** and **mute** (rather than toggles) offer improved control over the PAV when operated from a remote zone.

The Surround, Path and Misc Control menus under the Direct Access menus are as follows:

*surround, path and misc control menus*

SURROUND	PATH	MISC CONTROL
PRO LOGIC	MAIN	OPERATE
STEREO SRND	REMOTE	STANDBY
MONO SURROUND	BOTH	MUTE ON
SURROUND OFF	RECORD	MUTE OFF
MONO		DIRECT VOLUME

Press the appropriate button on the remote control (while in learning mode), and then use the front panel **standby (enter)** and **volume +/-** buttons to select and “fire” the appropriate IR command from the **main display** of the PAV into the remote control. Repeat as necessary.

**Direct Volume** provides a method for directly accessing any two-digit volume setting, something that owners of home automation systems such as Audioaccess, AMX and Crestron can use in their macros. For example, a macro called “Background Music” might be written that would

- select a particular music program on a 100-disc CD changer;

- select **cd1** on the PAV/PDSD;
- select **stereo surround**;
- and change the volume setting to **35** (regardless of where the volume had been set previously).

The format for giving the direct volume command is as follows: **direct volume**, then two digits, then **enter**.

## 6 TO LEARN OTHER SPECIAL COMMANDS, SELECT “SPECIAL” ON THE TEACH REMOTE MENU

Finally, the PAV/PDSD provide several special commands that offer home entertainment enthusiasts and home automation designers more specialized control over their systems.

**Control trigger 1 & 2 on** and **control trigger 1 & 2 off** make it possible to control the remote turn-on trigger outputs on the rear panel of the Digital Surround Decoder independently of the system itself. For example, should you decide to use one of these trigger outputs to control amplifiers in the remote zone rather than the local amplifiers, learning these IR commands would allow you to turn the remote amplifiers on and off (even from across the house) without affecting the operational status of the main home theater.

The **sub/crossover** feature will toggle between the configuration established during initial setup and using the front three loudspeakers full-range, without any help from the subwoofer(s). (*Specifically, it turns off the crossover and the subwoofer output when sub/crossover off is selected.*) This feature may be used to compare the performance of the system configured with and without the subwoofer(s). (Note that pressing **recall** will always return the system to its calibrated setup configuration, regardless of its current status.)

### control trigger 1 menu

This menu is used to configure and define how you want the PDSD trigger #1 to operate. When you enter this menu, you see something like this:

CONTROL TRIGGER 1

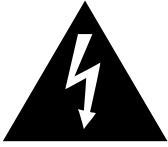
SOURCE: STANDBY  
TYPE: PULSE

INTERNAL SETTINGS:  
VOLTAGE OUTPUT 12V

The **source**: refers to what the trigger takes its cue from: either the system changing back and forth from **standby** to operate, or an independent **IR command** (learned in the teach remote menu).

The **type**: refers to whether the output of the trigger is a **level** (constant) trigger or a **pulse** (simulating the action of a momentary-closure contact switch).

**Internal settings** within the Digital Surround Decoder determine whether the electrical result of these triggers is **5V** or **12V**, or even the closing of a dry contact **relay** (should you require to source more current or a higher voltage than the



**Warning!**

Digital Surround Decoder can provide). If this is the case, you can use **control trigger 1** as a switch by placing it in series with an external power source such as a “wall wart” power supply.

---

***There are no user serviceable parts inside the PDSD. If you need one of the internal settings changed to support your installation, please contact your dealer.***

---

**control trigger 2 menu**

The **control trigger 2 menu** is exactly the same as that for **control trigger 1**, except that *only* **control trigger 1** can be set for use as a dry contact relay with an external power source such as a “wall wart” power supply. See *control trigger 1 menu*, above.

**rear ir input menu**

The infrared remote input jack on the rear panel of the PAV may be programmed to respond to either **local** commands (*e.g.*, duplicating the functionality of the IR receiver in the PAV’s **main display**) or **remote** commands (*e.g.*, from an IR repeater, to affect only the **remote** signal path). (Refer to the *Remote IR and Remote Turn-on* section of your PAV manual for more information.)

The factory default setting is **remote**. If your installation of the PAV/PDSD prevents IR commands from reaching the PAV (as when behind closed doors, for example), and if you are using an IR repeater to pass IR commands to the system, you may wish to set the IR input on the rear panel to **local**, in which case you would also want to “hard-wire” the PAV to your IR repeater. To make this software change, follow these steps:

**1 ENTER THE CUSTOM MENU**

This menu is accessed from the **main menu** by moving the cursor to **custom**, and pressing **enter** to select the menu item.

**2 SELECT REAR IR INPUT**

Using the **volume ±** buttons, move the cursor to **rear IR input** and press **enter**.

**3 TOGGLE THE MENU ITEM FROM REMOTE TO LOCAL**

Press either of the **volume +/-** keys to change the default setting of **remote** to **local**. Press **enter** to save the change.

**Important:**

---

***Note that this change will not take effect until you back out of the on screen menus and return to normal operation. This delayed response allows you to continue to use the IR receiver on the main display long enough to finish what you are doing. It will be turned off in favor of the IR input jack once you leave the menu system.***

---

Once the rear IR jack is changed to local, the IR receiver in the main display is deactivated in favor of the rear IR jack. If you do this unintentionally and are not set up to “hard-wire” the commands into the rear IR jack, don’t worry. You can always use the front panel buttons to operate the on screen menu system, turning the rear IR jack setting back to remote. Doing so reactivates the IR receiver in the PAV’s **main display**. (See *front panel equivalents*, page 34.)

**changing the  
pav’s ir address**

In some installations, you may discover that some other company is trying to use the same infrared control codes used by the PAV, or vice versa. (This unfortunate circumstance has become more common in recent years thanks to the explosion of IR-controlled products in the home.) Fortunately, the PAV allows you to use any of eight different sets of IR codes, which are accessed by changing the “IR address” used by the PAV.

**Important!**

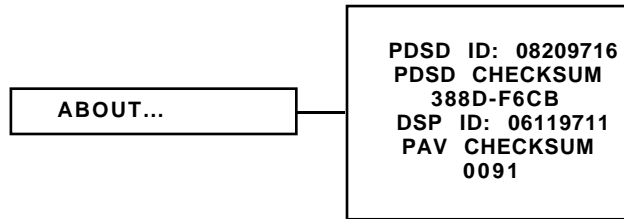
---

***If you change the IR address of your PAV/PDSD system, your remote control will no longer operate the system until it is recaught all of the new codes! Do not change this setting from its default value of 5 unless you must, in order to solve a conflict.***

---

If you run into an apparent IR conflict where pushing one button on a remote control affects something seemingly unrelated, we suggest that you contact your dealer/installer for assistance. (The numbers 0 through 7 refer to Philips RECS80 addresses, a bit of engineering trivia your installer may need if your system is already using several of the available addresses, including the one we normally use in the PAV: 5.)

# The About... Menu



This screen displays checksum information about the version of the software your system is using, and will be tremendously helpful if you ever have a problem and need to call. You might consider copying these numbers down for future reference in the back of this manual under *Your System Settings*. That way, you will be able to take the numbers to the phone with you if you have to call.

# Planning Your Installation

*The information contained within this section is intended to help get someone started who wishes to design and install their own sophisticated A/V system built around the Proceed PAV/PDSD combination. However, it cannot be considered a substitute for the experience, expertise and specialized training of an audio/video installation professional. (See A Word About Installation, page 12.)*

## choosing the equipment

The list of equipment needed for a full home theater system based on the PAV/PDSD is fairly straightforward:

- The Proceed PAV and Proceed Digital Surround Decoder
- At least six channels of amplification (Left, Center, Right, two Surrounds, and one or more Subwoofers)
- Additional amplification and loudspeakers if a **remote** zone is to be used. (Alternatively, the remote outputs may be used in conjunction with a third-party multi-room system.)
- Left, Center and Right (LCR) front speakers with appropriate stands or mounting brackets
- One or more subwoofers (required with THX speaker systems; otherwise optional, but recommended)
- A pair of Surround speakers with appropriate stands or mounting brackets
- Assorted appropriate interconnecting cables, speaker wires, *etc.*

Of course, you will also need at least one source and a display system. Examples of sources include:

- DVD
- Laserdisc
- Direct Broadcast Satellite (DBS, DSS)
- a good cable-TV or antenna signal
- Super-VHS tape
- Hi-8 mm videotape
- regular VHS videotape

## planning your equipment placement

The “light pollution” created by some components can be significant and distracting. Ideally, all equipment should be conveniently located for operation, but any lights and other indicators should be out of your direct field of vision when viewing the television picture. The various indicator lights, though essential for proper operation, can be distracting when listening to music or watching a movie. While the PAV/PDSD’s displays may be turned off (with the **display** button on the remote control) to eliminate this problem, other components are unlikely to have this feature.

Care should also be taken that any mechanical noise created by VCRs, laserdisc players, *etc.* does not intrude on the viewing experience. Placing the equipment behind opaque doors, inside a cabinet addresses both light and noise concerns. Should this option be chosen, a hard-wired **remote IR** input is provided on the Digital Surround Decoder’s rear panel to replace the IR input which would normally be received through the receiver in the PAV’s **main display**. Alternatively,

locating the components well away from the field of vision can be effective (if mechanical noise from transports, *etc.* is not a problem).

Attention should be paid to the accessibility of the infrared control signal to the components. Most people instinctively aim remote controls at the screen, without thinking about the location of the equipment. It is a good idea to locate a small infrared “repeater” in the vicinity of the screen, set up to relay the signal into the equipment area and/or the Digital Surround Decoder’s **remote IR input**. This is especially true if the equipment has been isolated from plain view, inside cabinetry.

**the “correct” size for  
your television screen**

Video images will often be displayed on some sort of projection system, since the increased size will give you a more film-like experience. There may be situations where a 31”–35” direct-view television is appropriate (in smaller rooms, for example). But do not give in to this temptation too easily—part of the theater experience is the visual impact of having your field of vision dominated by the size of the image on the screen. A good rule of thumb is to use a diagonal screen size of approximately  $\frac{1}{2}$  to  $\frac{1}{4}$  the planned viewing distance. Thus, if your seating is 12 feet from the screen, you would like to use a television with a 3 to 6 foot (36”-72”) diagonal screen measurement. In this case, a 35” direct-view television might be *just* adequate. A larger screen would be preferable, especially if you plan to watch many letterboxed movies. If your video system includes a line doubler for enhanced resolution, take advantage of the improved picture clarity by using a larger screen (closer to the one-half-the-distance figure).

**the power amplifiers**

Given the dynamic range of modern soundtracks and people’s expectations of their home theater systems, at least 100 w/ch is recommended *for all six channels*, with few exceptions. Still more power may be required in unusually large rooms.

A common misconception is that the center and surround speakers have lower power requirements than do the rest. This is not true. *The center channel is often the hardest-working speaker in a movie soundtrack’s mix.* You should also be forewarned that the surrounds are working harder than your first impression might indicate. While they may require less power on average, there are moments during which they are the loudest speakers in the room (as when an aircraft seems to fly overhead, for example). Prudent system design requires that the surround channels have enough power to reproduce their signals without amplifier clipping, even under such a worst-case scenario.

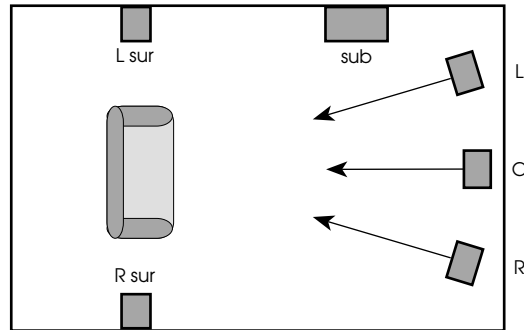
**the left, center and right (LCR)  
front speakers**

The goal of the front speakers is to accurately recreate the sounds that would be coming directly at you in real life situations. It is important that they be accurate in terms of tonal balance, dynamic capabilities, and imaging precision if they are to recreate a convincing soundstage (whether of music or film soundtracks). They also need to be well-matched to one another—do not skimp on the center channel speaker, as it is the most important loudspeaker in the entire system when it comes to movie reproduction.

Ideally, all three Front speakers would be at the height of the screen. Of course, the center channel speaker would then obscure the screen, so placement above or below the screen is usually required. All three speakers should be close to the same height, however, to avoid distracting changes in apparent altitude as sound is panned across the screen.



toe-in of left & right speakers



Some toe-in of the Left and Right speakers toward the main listening area (*see above*) will help minimize side wall reflections and balance the sound for people at the extreme edges of the viewing area.

If possible, it is usually desirable to have the side walls between the front speakers and the listener be acoustically absorptive to further minimize early side wall reflections. Plush drapes, wall hangings, and various commercially-available materials can do the trick nicely. (Consult with your dealer for further ideas.)

#### **the subwoofer(s)**

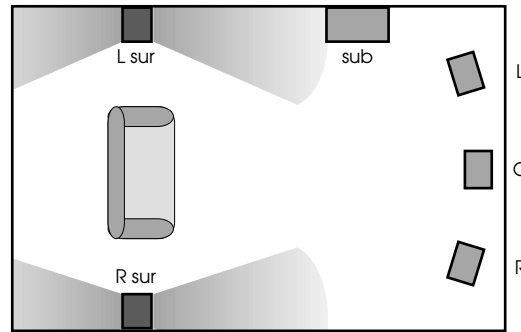
The Proceed PAV/PDSD system normally uses a common-bass subwoofer, meaning that the low frequency information from the controller is summed to a single channel. This can be done without degrading the stereo effect because the human ear cannot readily localize sounds below about 120 Hz. In addition, virtually all program material (music and movies) is monophonic below 100 Hz. As a result, there is a great deal of flexibility in the placement of the subwoofer(s). The primary goal is to have bass which can deliver visceral impact without becoming boomy or distorted. In order to achieve this, attention must be paid to room placement to minimize the "room modes" (or standing waves). Corner placement often works best, since it stimulates all possible room mods rather than only a few, providing smoother overall response.

#### **the surround speakers**

Ideally, the rear speakers will create a diffuse, non-localizable soundfield which envelopes the listener. Creating this effect depends in part on the loudspeakers chosen for the job.

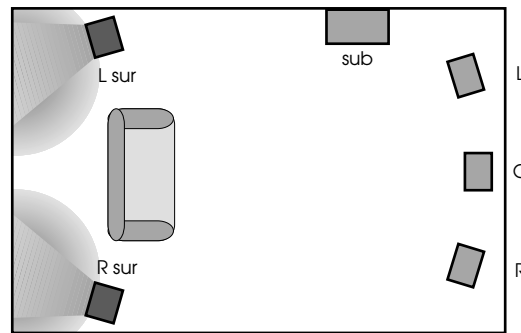
If dipolar surround speakers are used, they should be located high and to the sides of the listening area, firing to the front and the rear of the room. (See diagram, below.) This placement ensures that the audience will not be able to localize them as sources of sound, but rather will be enveloped in a diffuse soundfield. They should be at least two feet above ear level when seated. Ideally, they would be placed somewhat above ear level even when standing, so that they are unlikely to be localized as people walk around the room.

*dipolar surround placement*



If more traditional speakers are used, you may want to consider placing them such that their output is scattered across the rear of the room. (See diagram.) This placement provides a diffuse soundfield somewhat similar to the dipolar speakers. Often, the best results will be obtained by placing them relatively high and slightly behind the listener, cross-firing across the rear wall so as to create a large number of reflections with relatively little direct sound arriving at the listening position.

*conventional surround placement*



**working in unusually large rooms**

Large rooms (in the 4000-6000 cubic feet range) have so much air to move that they may benefit from having additional subwoofers for greater bass impact. The PAV/DSD's subwoofer output can easily drive several power amplifiers—simply split its output with Y-connectors. Alternatively, you can purchase the auxiliary output module (turning your Digital Surround Decoder into an eight channel processor) and set one of the channels to provide for an extra, independently adjustable subwoofer.

Another technique for large rooms involves the construction of risers for the seating area in a dedicated home theater. Risers tend to enhance the visceral effect of deep bass by providing a resonant platform for the couches and chairs, thereby transmitting structural as well as airborne vibrations to the audience. This approach can be used alone or in conjunction with extra subwoofers. If both techniques are used, consider building one or more subwoofers into the riser, which both conceals the subwoofer's bulk and maximizes the vibrations being transmitted to the listener's chair. (Action movies will never be the same...)

# System Planning Guide

Experience shows that almost any reasonable amount of time spent in the planning stages will pay for itself two to three times over during the installation—more if the installation crew includes two or three people. With the background provided in the previous sections, the planning process can be boiled down to a checklist which will ensure that you do not overlook anything important.

## video placement

- The primary seating area should be perpendicular to the picture.
- Be aware of the trade-off between screen size and perceived clarity. The resolution of NTSC requires a seating distance of at least 4 times the diagonal screen size for maximum perceived clarity (this is why small screens seem so sharp). Yet larger images have greater visual impact. You may want to go for a seating distance of as little as 2 times the screen size to increase visual involvement (although this is probably only realistic if you have a line-doubled television).
- Stray ambient light should be minimized. (Drapes, dimmers, light placement)
- Leave room for the Left, Center, and Right (LCR) speakers up front, flanking the screen itself, placed with reasonable symmetry with respect to adjacent walls, and all at the same distance from the primary viewing area.
- The screen should be well away from side walls, since you want to minimize side wall reflections from the front (LCR) speakers.

## electronics placement

- Cabinetry is generally preferred to conceal the distracting LEDs on the equipment. (An infrared repeater system may be needed in this case.)
- The ideal system would have invisible, yet readily accessible equipment and an IR repeater to relay the user's commands from the area of the screen to the concealed electronics.
- People tend to aim their remote controls at the screen, regardless of where the equipment is. In the absence of IR repeaters, placing the electronics near the screen makes the system's operation more intuitive.
- Ample ventilation for the power amplifiers must be provided, preferably through convection (to avoid fan noise).

## speaker placement

- Can the speakers be used as designed? (Wall-mounting speakers designed to be used in free space may create a mid-bass bump in the response—consult with the manufacturer of your speakers as to their best use.)
- The Left and Right speakers often should be closer to the edges of the screen than you may think best initially. There is some cognitive dissonance (disorientation) when sound appears to come from well away from its apparent visible source.
- The Center speaker should be centered on the screen, directly above or below it (unless you have an acoustically transparent screen, in which case it may be directly behind the center of the screen). Try to keep its tweeters as close to the level of the tweeters in the L&R speakers as possible, so that pans do not involve noticeable changes in altitude. Make sure that the Center speaker is

the same distance from the main listening area as the Left and Right speakers.

- If THX-certified LCR speakers are used and must be either above or below ear level when seated, aim them down (or up) into the listening area. They are intentionally quite directional in the vertical plane, to improve dialog intelligibility and localization.
- Placing the LCRs below the screen is generally preferable to placement above.
- The subwoofers do not have to be extremely close to the LCRs—anywhere in the room is all right, but placement will affect the consistency of the low bass. Experimentation is in order.
- Dipolar surrounds should be located high and to the sides of the listeners instead of behind them, in order to place the audience in the surround speakers' null. If the viewing area is more than one row deep, place the surrounds halfway back within the seating area.
- If architectural constraints prevent ideal placement of dipolar surrounds directly to the sides of the listening area, it is generally best to err on the side of being a bit further to the rear of the room.
- When using traditional speakers for the surround channels, the speakers should be located high and somewhat behind the listeners, with the speakers' output directed toward the rear wall rather than at the listeners.
- The surrounds should be relatively high, often near the ceiling for the best results. And they should be located equally distant from their adjacent walls/ceilings, or else one will have more mid-bass than the other.

**additional notes on  
speaker placement**

- Some allowance must be made for those installations involving relatively small screens, such as 35" direct-view televisions. Placing the speakers immediately beside televisions of this size may reduce the stereo separation to unacceptable levels. Some experimentation is in order, but as a rule of thumb, try to have the L and R speakers spread apart by no more than approximately 1.5 times the width of the screen to avoid cognitive dissonance from the apparent conflict between visual and aural images.
- With regard to subwoofer placement, it is important to leave yourself some leeway during final installation for minor movements to minimize room modes. Corner placement usually works best, but not always—you have to try it in your particular situation to be sure.
- Use multiple subwoofers if more bass output is needed. This also has the advantage of allowing one subwoofer to fill the other's "holes" created by room modes, while reducing distortion by giving each subwoofer an easier task.

# Using PAV/PDSD

## setting the volume

Normally, when you wish to change the volume, you want all the speakers to move up or down together, maintaining their relative balance. Thus the volume control will operate as a **master** volume by default.

Occasionally, you may want to change the volume of some speakers *relative* to others; for example, you may want to increase the level of the rear speakers a bit for more dramatic surround effects. To do so, press the **rear** button, followed by the **volume** button while the light about the **rear** button is still lit. Similar two-step operations work for center, subwoofer and balance as well.

If you have made a relative adjustment and wish to adjust the master volume without waiting for the system to timeout and return to its default, pressing **master** will allow you to immediately adjust the master volume.

## home thx cinema®

**THX cinema**® indicates that the proprietary Home THX audio processing circuits are in use in addition to whatever multichannel audio is appropriate for the source in question. This can include Dolby Digital, DTS, or Dolby Pro Logic (either analog or digital). In the case of discrete multichannel sources (anything other than Pro Logic), THX 5.1 will be employed automatically; in the case of Pro Logic, THX 4.0 is used.

**THX cinema** is most appropriate for film-based program materials made since the mid-1970's, which have (in all likelihood) been mixed in a standard dubbing stage environment. This setting will provide the listener with the most accurate reproduction of the majority of motion pictures available. In addition, many other video source materials are produced in Dolby Surround using the industry standard response curves, and are best enjoyed in the **THX cinema** mode. (Examples include *Star Trek: Voyager* and *The David Letterman Show*, which are mixed in an environment which emulates the dubbing stage used for film.)

**THX cinema** includes several specific technologies designed to more accurately reproduce film soundtracks:

- **Re-Equalization**™: corrects for the overly bright front channels commonly found in film soundtracks
- **Electronic Crossover**: designed to work optimally with THX-certified speakers to enhance low frequency dynamic range (especially important with multichannel digital sources such as Dolby Digital)
- **Adaptive Decorrelation**™: enhances surround spaciousness and envelopment only when necessary (based on the soundtrack itself)
- **Bass Peak Level Manager**™: keeps low frequency transients under control to minimize the opportunity for amplifier or speaker overload.
- **Loudspeaker Position Time Synchronization**™: ensures a coherent, time-aligned soundfield.

	<p>When in doubt as to whether <b>THX cinema</b> processing should be included, listen for a natural presentation of the treble. Films mixed for theatrical release exhibit an elevated treble region when played back on a home system with flat response. The <b>THX cinema</b> mode will correct this. Conversely, surround-encoded programs <i>without</i> this high frequency emphasis might sound dull or lacking in detail when (incorrectly) played in the <b>THX cinema</b> mode.</p>
<b>dolby pro logic surround</b>	<p>Some two-channel program material does not conform to film industry standards, although it may still be Dolby Surround encoded so it can decode to four channels. Music videos on MTV, for instance, are often Dolby Surround encoded, but have soundtracks which are produced in non-film studios. In fact, a growing number of music CDs are mastered with surround sound. These sources and others which have surround encoding but which are unlikely to have been mixed or remixed in industry-standard production facilities should use the <b>pro logic</b> mode to avoid compensation where none is indicated.</p>
<b>stereo surround</b>	<p>The <b>stereo surround</b> mode has been carefully designed to extract real ambience from your recordings rather than synthesizing something artificial that might be quite alien to the music itself. The ambient cues found in the program material are then used to provide appropriate information for the center and rear speakers. The front Left and Right speakers are left unaffected by this mode, allowing you to hear unadulterated stereo imaging with the addition of a genuine sense of hall ambience.</p> <p>Since this mode is based on the recordings themselves, it is normal to hear some variation in the degree of the effect. Extremely “dry” recordings which lack any significant ambience may not sound significantly different than when in <b>surround off</b> mode (<i>e.g.</i>, two-channel stereo). You may find that increasing the level of the rear speakers is necessary in order to bring what little ambience is in a “dry” recording up to a more enjoyable level.</p>
<b>mono surround</b>	<p>The <b>mono surround</b> mode can provide a sense of spaciousness and size to monophonic program material such as some historical recordings and movie classics such as <i>Casablanca</i> or <i>The Wizard of Oz</i>. The <b>mono surround</b> mode makes no effort to “electronically reprocess to simulate stereo” (a process which almost always causes more harm than good). Instead, it uses sophisticated steering techniques to create a sense of space in what would otherwise be a largely dimensionless soundfield. It is particularly helpful when viewing mono program material on a big screen, where a tiny mono image would simply sound wrong in contrast to the big picture.</p>
<b>surround off</b>	<p>The <b>surround off</b> mode is intended for music reproduction without any form of surround enhancement. In this mode, the Left and Right speakers are active along with the subwoofer(s), and reproduce the input without any processing other than the electronic crossover needed for the subs.</p>
<b>mono</b>	<p>The <b>mono</b> mode sums the incoming Left and Right signals. The result is sent to the center channel speaker, as well as the subwoofer(s). This mode is especially useful for older, classic films or historical recordings which have noisy mono soundtracks. Since much of the noise is likely to be random in phase, significant noise cancellation can often be achieved by playing these mono sources in a true <b>mono</b> mode.</p>

**automatic migration**

If you have multiple connections defined for a particular source, the PAV/PDSD will automatically use the highest-priority connection available. For example, if you have chosen **AC-3 RF demodulator**, followed by **digital**, followed by **analog** for your laserdisc player, the system will first look to the RF input. If it cannot lock onto a signal there, it will move to the digital input. Lacking a signal there, it will migrate to the analog input. However, the system will continue to look for a higher-priority signal and if one becomes available, will go to it automatically. If you have the on screen messages enabled, you will be notified of the change.

At your option, automatic migration may be turned off (in the Operate menu). For most people, it is easier to use “forced migration” when they want to see what a different connection might sound like, as explained below.

**forced/manual migration**

On some occasions, you may wish to “force” a migration beyond the usual priority. In our laserdisc case, for example, you might want to compare the sound quality of **Dolby Digital** to **(digital) Pro Logic**, and to **(analog) Pro Logic** in the PAV. To do so, simply click the source button again (in this case, laserdisc) for each forced migration. The system will cycle through all available connections.

Note that when you have done this, you have asked the system to migrate from one input to the next *manually*. To restore *automatic* migration, simply select any other input button (assuming that **automatic migration** is turned on in the **operate menu**).

**watching a simulcast**

To create a “simulcast” situation where you are watching the video associated with an A/V source button with the audio associated with an audio-only source button, simply select the picture you want followed by the sound you want, in turn. In this way, you can watch a sporting event while listening to the play by play on the radio (for example).

To return to the usual combination of audio and video from the same source, simply reselect that A/V source.

# Programming the Remote Control

## programming other components' functions

The remote control provided with the PAV is capable of learning the commands of almost any other remote control. This is true of any and all buttons on the remote, including those that are pre-programmed from the factory to operate specific PAV functions. If you find that some other configuration of the PAV remote control better suits your particular needs, you are free to assign any command to any button.

Chances are you will want to leave the pre-programmed functions of the remote control where they are. The first order of business will be to teach the remote control the critical functions of your other remote controls so you can put them safely away in a drawer somewhere (reducing the clutter on your coffee table). Before teaching the PAV remote control new commands, it is a good idea to organize your thoughts regarding which commands you would like to teach it, and which buttons are the most logical "locations" for those commands. (See *Planning Your Remote Control*, pp. 74-75.)

For example, you may want to group the commands for your most-used components (perhaps your CD player and your TV) on the same bank as the PAV commands. Doing so minimizes the need to switch to the other bank.

Once planned, actually teaching the PAV remote the new commands is simple. Follow these steps:

### 1 USING A PEN OR SIMILAR OBJECT, PRESS USE/LEARN.

This action places the remote control in the Learning mode, indicated by the **ready to learn** and the **learned/sending** lights both being lit. Whenever you wish to return to normal **use** mode, you may press the **use/learn** button again.

### 2 PRESS THE BUTTON WHICH IS TO RECEIVE A NEW COMMAND

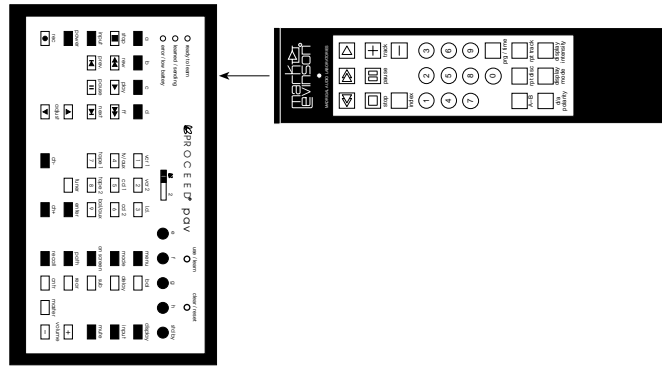
This button becomes the "destination" for the command you are about to "send" to the PAV remote control from the other component's remote.

### 3 WITH THE OTHER REMOTE POINTING INTO THE PAV REMOTE CONTROL'S IR WINDOW, PRESS AND HOLD THE COMMAND TO BE LEARNED FROM THE OTHER REMOTE

Note that the PAV remote's IR window is on the left side of its front surface as seen from the normal user's position. The PAV remote control will "receive" the IR command from the other remote and **learn** it, indicated by the **learned/sending** LED lighting for a few moments. When this occurs, you may release the button on your other remote.



teaching the PAV remote control new commands



After the command has been successfully learned, both the **ready to learn** and **learned/sending** LEDs will light once again, indicating that the PAV remote control is ready to repeat the process.

**4 REPEAT THE PROCESS OF “TEACHING” NEW COMMANDS TO THE VARIOUS BUTTONS ON THE PAV REMOTE CONTROL UNTIL FINISHED.**

You may, of course, add additional commands at any time. Just be careful not to assign two commands to the same button (in the same bank), as this will cause the second command to overwrite the first one, making it unavailable for use.

**5 PRESS “USE/LEARN” AGAIN WHEN YOU ARE DONE, IN ORDER TO RETURN TO NORMAL “USE” MODE**

You may now use your PAV remote control in place of the one you just used to teach the PAV remote its “new tricks.” In the normal **use** mode, the PAV remote control will transmit the various commands it has been “taught” to associate with particular buttons, allowing you to put away the other remote.

**6 TEST ALL YOUR NEW “LEARNED” COMMANDS TO ENSURE THAT THEY WERE “LEARNED” CORRECTLY**

As with all learning remote controls, it is sometimes possible for the PAV remote control to learn either partial or multiple command bursts from the original remote control. If you experience unexpected behavior when using the PAV remote in lieu of the original, simply reteach the offending command. You may want to try either a quick tap or a more extended press of the original remote control’s button in order to get it to send a complete (but not redundant) control signal for the PAV remote control to learn. Try to avoid brightly lit areas, or areas lit by strong fluorescent lights, when teaching any learning remote control new commands. If it is impractical to dim the lights a bit, provide some shade between the remotes by holding this owner’s manual (or something similar) over the remote controls while teaching new commands.

# Planning Your Remote Control

For your convenience, we have included the following form on which you may plan which additional functions you will assign to which buttons on the PAV remote control. We suggest photocopying this page and then planning your programming before getting into it too heavily. A little time spent planning can make the teaching process go much more smoothly, and it provides you with a ready reminder of which commands you placed where during the first day or two of use. After that, you will probably find everything to be second nature, and you may wonder how you ever got along without this "all-in-one" remote control. An asterisk (\*) indicates buttons normally used by the PAV.

## the proceed bank: left

a _____	b _____
c _____	d _____
stop/■ _____	play/▶ _____
rew/◀◀ _____	ff/▶▶ _____
input _____	pause/   _____
prev./◀ _____	next/▶ _____
power _____	rec/● _____
adjust ▲ _____	adjust ▼ _____

## the proceed bank: center

vcr 1/1 _____	vcr 2/2 _____
l.d./3 _____	tv/aux/4 _____
cd 1/5 _____	cd 2/6 _____
tape 1/7 _____	tape 2/8 _____
bal/aux/9 _____	tuner/0 _____
enter _____	
ch- _____	ch+ _____

## the proceed bank: right

THX* _____	mode* _____
status* _____	late night* _____
std by* _____	enter* _____
on screen* _____	master* _____
display* _____	bal* _____
input* _____	cntr* _____
delay* _____	rear* _____
recall* _____	sub* _____
recall* _____	mute* _____
path* _____	menu* _____
volume +* _____	volume -* _____

**bank 2: left**

a \_\_\_\_\_  
c \_\_\_\_\_  
stop/■ \_\_\_\_\_  
rew/◀◀ \_\_\_\_\_  
input \_\_\_\_\_  
prev./◀ \_\_\_\_\_  
power \_\_\_\_\_  
adjust ▲ \_\_\_\_\_

b \_\_\_\_\_  
d \_\_\_\_\_  
play/▶ \_\_\_\_\_  
ff/▶▶ \_\_\_\_\_  
pause/|| \_\_\_\_\_  
next/▶ \_\_\_\_\_  
rec/● \_\_\_\_\_  
adjust ▼ \_\_\_\_\_

**bank 2: center**

vcr 1/1 \_\_\_\_\_  
l.d./3 \_\_\_\_\_  
cd 1/5 \_\_\_\_\_  
tape 1/7 \_\_\_\_\_  
bal/aux/9 \_\_\_\_\_  
enter \_\_\_\_\_  
ch- \_\_\_\_\_

vcr 2/2 \_\_\_\_\_  
tv/aux/4 \_\_\_\_\_  
cd 2/6 \_\_\_\_\_  
tape 2/8 \_\_\_\_\_  
tuner/0 \_\_\_\_\_  
ch+ \_\_\_\_\_

**bank 2: right**

THX \_\_\_\_\_  
status \_\_\_\_\_  
std by \_\_\_\_\_  
on screen \_\_\_\_\_  
display \_\_\_\_\_  
input \_\_\_\_\_  
delay \_\_\_\_\_  
recall \_\_\_\_\_  
recall \_\_\_\_\_  
path \_\_\_\_\_  
volume + \_\_\_\_\_

mode \_\_\_\_\_  
late night \_\_\_\_\_  
enter \_\_\_\_\_  
master \_\_\_\_\_  
bal \_\_\_\_\_  
cntr \_\_\_\_\_  
rear \_\_\_\_\_  
sub \_\_\_\_\_  
mute \_\_\_\_\_  
menu \_\_\_\_\_  
volume - \_\_\_\_\_

# Your System Settings

The settings in your Proceed PAV/PDSB system are saved in non-volatile memory and should normally survive power outages. Still, it is a good idea to write your preferred settings down against the chance of an inquisitive neighbor or family member changing them without your knowledge. Please use the following form to record your system's settings against such a possibility.

## operate menu settings

- Display Position \_\_\_\_\_
- Display Timeout 1 2 3 4 5 seconds (circle one)
- Character Style Black Box or Black Fringe (circle one)
- Background Color Blue or Black (circle one)
- Volume display Relative (to THX reference level) or Absolute (with 0 representing volume *off*)
- Volume Speed Slow or Fast (circle one)
- Mute level \_\_\_\_\_
- Maximum Volume \_\_\_\_\_
- Dialog Norm. \_\_\_\_\_
- Setup: Unlocked or Locked  
(after you re-enter all other settings)

## cd 1 button defaults

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

## cd 2 button defaults

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**tape 1 button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**tape 2 button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**bal/aux button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**tuner button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**vcr 1 button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**vcr 2 button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**laserdisc button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**tv/aux button defaults**

- Name \_\_\_\_\_
- Type Audio, A/V or Unused
- Video Type Composite, S Video (circle one if A/V)
- Video Connector vcr1, vcr2, laserdisc, tv/aux (circle one if A/V)
- Mode No Change, Pro Logic, Stereo Surround, Mono Surround, Surround Off, or Mono (circle one)
- Audio Connectors \_\_\_\_\_ (1, 2, or 3)
- 1: \_\_\_\_\_
- 2: \_\_\_\_\_
- 3: \_\_\_\_\_
- Rec Out vcr1, vcr2, tape1, tape2, none (circle one)

**low freq cutoff settings**

- Front L&R Full Range or 80 Hz (circle one)
- Center Full Range, 80 Hz or None (circle one)
- Side L&R Full Range or 80 Hz (circle one)  
*(only visible if configured for 8-channels)*
- Rear L&R Full Range or 80 Hz (circle one)
- Sub One or None (circle one)

**set distance**

- Left \_\_\_\_\_
- Center \_\_\_\_\_
- Right \_\_\_\_\_
- R. Side \_\_\_\_\_ *(only visible if configured for 8-channels)*
- R. Rear \_\_\_\_\_
- L. Rear \_\_\_\_\_
- L. Side \_\_\_\_\_ *(only visible if configured for 8-channels)*
- Sub \_\_\_\_\_
- Units English or Metric (circle one)

**set levels**

- Left \_\_\_\_\_
- Center \_\_\_\_\_
- Right \_\_\_\_\_
- R. Side \_\_\_\_\_ *(only visible if configured for 8-channels)*
- R. Rear \_\_\_\_\_
- L. Rear \_\_\_\_\_
- L. Side \_\_\_\_\_ *(only visible if configured for 8-channels)*
- Sub \_\_\_\_\_

**bass level manager**

- Saved level \_\_\_\_\_

**mode defaults:  
discrete**

- Center \_\_\_\_\_
- Rear \_\_\_\_\_
- Sub \_\_\_\_\_
- Sub Mode No Change, Force on, Force Off (circle one)
- THX On, Off (circle one)

**mode defaults:  
pro logic**

- Center \_\_\_\_\_
- Rear \_\_\_\_\_
- Sub \_\_\_\_\_
- Sub Mode No Change, Force on, Force Off (circle one)
- THX On, Off (circle one)

**mode defaults:  
stereo surround**

- Center \_\_\_\_\_
- Rear \_\_\_\_\_
- Sub \_\_\_\_\_
- Sub Mode No Change, Force on, Force Off (circle one)

**mode defaults:  
mono surround**

- Center \_\_\_\_\_
- Rear \_\_\_\_\_
- Sub \_\_\_\_\_
- Sub Mode No Change, Force on, Force Off (circle one)

**mode defaults:  
surround off**

- Sub \_\_\_\_\_
- Sub Mode No Change, Force on, Force Off (circle one)

**mode defaults:  
mono**

- Sub \_\_\_\_\_
- Sub Mode No Change, Force on, Force Off (circle one)

**control trigger 1**

- Source: Standby or Infrared Command (circle one)
- Type: Pulse or Level (circle one)

**control trigger 2**

- Source: Standby or Infrared Command (circle one)
- Type: Pulse or Level (circle one)

**rear ir in**

- Rear IR Input: Remote or Local (circle one)

**ir address**

- Infrared Address: \_\_\_\_\_ (default is 5)



# Room Acoustics

The following information on room acoustics does not need to be considered in every installation. Rather, it is provided for those who plan a dedicated listening room, or for those who feel they have a problematic room and therefore need ideas about how to improve their system's performance further.

Once again, the value of your dealer's experience should never be underestimated. Many installers have been involved in dozens or hundreds of home theater installations similar to yours, and have proven solutions to whatever problem you might be experiencing. The information provided here is best used as a starting point for your discussions with your dealer.

## room reverberation

In a perfect world, your room would have no characteristic sound of its own, no acoustical "fingerprint." The ideal room would be perfectly neutral and would not superimpose itself on the sound within it in any way. After all, any reverberation or ambient sound which the director wished people to hear will be recorded in the soundtrack. And much of the inherent ambience in music recordings will normally be reproduced by the rear speakers (using the **stereo surround** mode), where such ambience belongs. Anything beyond this added by the room would be redundant and would actually *detract* from the realism. In general, then, the ideal listening room will be somewhat more "dead" acoustically than the average living room. This goal can be accomplished through the use of drapes, plush carpeting, or various acoustical treatments.

Note, however, that the surround speakers depend on reflecting sound to develop the proper enveloping characteristic, and that they therefore need some reflective surfaces. Ideally, these would be diffusive in nature, providing randomized reflections in many directions. Bookcases and other irregular surfaces provide diffusion, as do some commercially-available wall treatments. If there is some degree of choice in the matter, it is generally better to have the rear  $\frac{1}{3}$  of the room be reflective and diffusive, while the front  $\frac{2}{3}$  of the room is *relatively* absorptive. Resist the temptation to "go overboard," however, lining the room with absorptive material from floor to ceiling. It is possible to have *too much* absorption, resulting in reduced subjective dynamic impact and therefore less excitement.

## the boundary effect

A well-known effect of room acoustics is the change in bass and mid-bass response which results from moving a speaker near a wall. This so-called "Boundary Effect" is the result of the reflection of the extremely long bass wave off the wall being substantially in-phase with the direct sound radiated toward the listener. This in-phase reinforcement effectively "doubles-up" on the amplitude of the bass relative to what would have been heard without the wall reflection. If a speaker was originally designed to produce flat response when situated in the middle of the room (not near any room surfaces), placing it on the floor or against a single wall often makes it sound somewhat bass-heavy. Placing it where the floor and the wall meet will produce even more bass, and placing it in the corner (at the intersection of three room surfaces) is enough to make almost any speaker sound congested and muddy, unless it was *specifically designed* for that type of placement in the first place. (In practice, the actual difference you hear may vary slightly from room to room, depending on how solidly the walls are built. A light, flexible wall may "leak" bass into the next room, reducing the magnitude of the effect.)

The Boundary Effect is particularly important when it comes time to position the front speakers. If they are not placed consistently with regard to adjacent room boundaries, the tonal balance or *timbre* of sounds panned across the front may change, weakening the illusion of a real object moving across the soundstage. The front Left, Center and Right speakers should be the same distance from the wall behind them, and there should be approximate symmetry of the Left and Right speakers with respect to their respective side walls.

#### room modes

Another acoustic property of concern is the concept of “room modes.” (These are also sometimes called “standing waves.”) Bass frequencies have long wavelengths, some of which are the same size as some dimension of the room itself. If the sizes work out such that the reflection of the wave between two walls is in phase with the original wave, that particular frequency will be overemphasized. Similarly, some frequencies will very nearly cancel out in certain parts of the room, being out of phase with each other. This effect is much worse in rooms in which two or more dimensions (width and length, for instance) are even multiples of one another, since the same frequencies are then being affected no matter which way they turn. The result is wildly irregular bass response in various parts of the room, resulting in either an unnatural, boomy quality or a thin, lifeless character to the sound depending on where you sit.

All rooms have room modes, but you can ameliorate their effect greatly. In the case of new construction, where you may have some latitude specifying the final room dimensions, make sure that no two dimensions of the room are even multiples of each other. (Consult with your dealer for more information.)

Most of the time, you will not have the luxury of specifying where walls should go. The next best thing (and something to be tried even when you *can* move walls) is mid-bass diffusion. Break up the reflections between parallel surfaces with large pieces of furniture or almost anything else. The worst sounding rooms are the ones which are almost empty, since the standing waves can bounce back and forth unimpeded.

Another strategy to be tried in minimizing the audibility of standing waves is speaker placement. The placement of the speakers in any home theater system is somewhat restricted by the need to have the sound closely associated with the screen, which in turn must be in a location convenient to the seating area. But sometimes moving a speaker a bit can make a noticeable difference in the smoothness of the mid-bass response, due to changes in the room's modes. Fortunately, the subwoofers can be moved with relative freedom, since they normally will not be localized as sources of sound. Experiment with an ear toward having the smoothest bass response and the best “splice” or transition to the LCRs.

Of course, there are various acoustical treatments which can be utilized—ask your dealer. There is also electronic equalization, but this is best done after everything else has been optimized. Electronic EQ is best for providing the finishing touches to a room, rather than for doing major surgery. And in all cases, electronic EQ should be done by a trained professional with equipment having *at least* one-third octave resolution. Anything less than that is likely to introduce as many problems as it solves.

# Troubleshooting

Your Proceed Digital Surround Decoder has been designed to deliver many years of satisfaction. It has also been designed to allow an unusual amount of “customization” so as to make it suitable in a wide variety of (possibly changing) circumstances. This flexibility necessitates a certain amount of setup before the unit can be expected to perform correctly—in effect, one must inform the system of its environment so it may make the right “decisions” about what it should do. Once setup is completed, the system is quite simple to use. But the setup is quite essential.

It has been our experience that most difficulties encountered with the PAV/PDSD system are due to improper initial setup. Please review the relevant portions of this manual for the details of the setup procedure.

## **I CAN'T SEEM TO GET A DIGITAL LOCK ON THE INCOMING SIGNAL.**

- ✓ Is the selected button properly defined and connected, with the source turned on?
- ✓ Are you using a high quality cable? (RF demodulators, in particular, require a low capacitance cable—some “audiophile” cables may not effectively transmit the signal to the PDSD!)
- ✓ Some transports turn off their digital outputs when in Stop—try pressing Play.
- ✓ If you are using a power line conditioner, bypass it and plug the PDSD directly into the wall outlet. (Some line conditioners “float” the ground connection, which can adversely effect performance.)

## **THERE SEEMS TO BE TOO LITTLE (OR TOO MUCH) BASS.**

- ✓ Is the low frequency cutoff set correctly for your speakers?
- ✓ Are the output levels set accurately, using a dB SPL meter?
- ✓ Are all the loudspeaker phased properly with respect to one another?

## **THE AURAL IMAGE SEEMS INCONSISTENT OR VAGUE**

- ✓ Are all the loudspeaker phased properly with respect to one another?
- ✓ Are the output levels set accurately, using a dB SPL meter?
- ✓ Are your speakers closely matched to one another in tonal balance and dynamic performance?

## **THERE IS A PERSISTENT HUM IN THE SPEAKERS.**

- ✓ If it exists only with a particular input, check that source component and its interconnecting cables.
- ✓ If it exists on all sources, you may have a ground loop by having multiple ground references in your system. We suggest you ask your dealer for assistance in isolating this problem.

**MY ON SCREEN DISPLAY HAS INDICATED THAT IT HAS DETECTED POTENTIAL AC PROBLEMS AND REFERRED ME TO THIS SECTION OF THE MANUAL.**

- ✓ If this is the first time you have seen the message, you probably don't have to do anything. If the system detects an electrical problem that might affect its operating software (an unusually strong spike on the AC line, for example), it posts this message and reinitializes itself automatically. Your user settings, output levels and so forth are retained.
- ✓ If you see this message with any regularity, you may have a persistent, severe ground loop or other AC problem that should be fixed. We suggest you ask your dealer for assistance in isolating and solving this problem.

**I LEFT THE SYSTEM ON, BUT JUST RETURNED AND FOUND IT IN STANDBY. WHAT IS HAPPENING?**

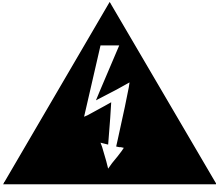
- ✓ There was probably a power outage while you were away from the system. During a power failure, the PAV saves all of its critical settings to nonvolatile memory. When power is restored, it enters the **standby** mode and waits for your return.

**MY ON SCREEN DISPLAY JUST INDICATED THAT THE PDSD WAS GETTING TOO HOT. WHAT DO I DO NOW?**

- ✓ The simplest thing to do is to increase the ventilation being provided to the PDSD. This situation is most likely to arise in a closed equipment closet that include several power amplifiers which are pre-heating the air before it even reaches the PDSD. Frequently, opening the door to the closet or providing additional ventilation some other way is all that is needed.
- ✓ If adding adequate ventilation is impractical, contact your dealer about the optional, internally-mounted, temperature-controlled fan kit Madrigal offers for such cases. See what you can do about temporarily increasing ventilation until the fan is installed. (If the temperature of the PDSD continues to rise, it will shut itself down before any damage can occur.)

# Care and Maintenance

To remove dust from the cabinet of the Digital Surround Decoder, use a feather duster. To remove dirt and fingerprints, we recommend isopropyl alcohol and a soft cloth.



**Caution!**

---

***Always apply the isopropyl alcohol to the soft cloth and then wipe the Digital Surround Decoder with the dampened cloth. Never pour or spray even small amounts of any liquid directly on the Digital Surround Decoder, as doing so may allow the liquid to reach the circuitry inside the unit. Any liquid inside the unit poses a hazard to both the user and to the unit, and must be avoided.***

---

When the Remote Control's batteries need to be replaced, use only AA batteries; always replace both batteries at the same time. If you don't plan to use the Remote Control often, remove the batteries. When not used for an extended period, even "leakproof" batteries can leak corrosive acids that will damage the Remote Control (and will void the warranty on the remote control).

# U.S. and Canadian Warranty

## 90-day limited warranty

This Proceed® product is warranted to be free from defects in material and workmanship under normal use for a period of ninety (90) days from the date of purchase. **To extend the warranty of this Proceed product**, return the warranty registration card along with a copy of the original receipt of purchase to Madrigal Audio Laboratories, Inc., P. O. Box 781, Middletown, CT 06457.

## five year extended warranty

The **extended warranty** for this Proceed product is **five (5) years** from the date of purchase. During the warranty period, any Proceed component exhibiting defects in materials and/or workmanship will be repaired or replaced, at our option, without charge for either parts or labor, at our factory. The warranty will not apply to any Proceed component that has been misused, abused or altered.

Any Proceed component not performing satisfactorily may be returned to the factory for evaluation. Return authorization must first be obtained by either calling or writing the factory prior to shipping the component. The factory will pay for return shipping charges only in the event that the component is found to be defective as above mentioned. There are other stipulations that may apply to shipping charges.

There is no other express warranty on this component. Neither this warranty nor any other warranty, express or implied, including any implied warranties of merchantability or fitness, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts and other states do not allow the exclusion or limitation of incidental or consequential damages, so that the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. **This warranty is applicable in the United States and Canada only.** Outside of the U.S. and Canada, please contact your local, authorized Proceed distributor for warranty and service information.

# Obtaining Service

We take great pride in our dealers. Experience, dedication, and integrity make these professionals ideally suited to assist with our customers' service needs.

If your Proceed component must be serviced, please contact your dealer. Your dealer will then decide whether the problem can be remedied locally, or whether to contact Madrigal for further service information or parts, or to obtain a Return Authorization. The Madrigal Technical Services Department works closely with your dealer to solve your service needs expediently.



## **Important!**

---

***Return authorization must be obtained from Madrigal's Technical Services Department BEFORE a unit is shipped for service.***

---

It is extremely important that information about a problem be explicit and complete. A specific, comprehensive description of the problem helps your dealer and the Madrigal Technical Services Department locate and repair the difficulty as quickly as possible.

A copy of the original bill of sale will serve to verify warranty status. Please include it with the unit when it is brought in for warranty service.



## **Warning!**

---

***All returned units must be properly packaged (preferably in their original packing material), and the proper return authorization numbers must be marked on the outer carton for identification. If the packaging to protect the unit is, in our opinion or that of our dealer, inadequate to protect the unit, we reserve the right to repackage it for return shipment at the owner's expense. Neither Madrigal nor your dealer can be responsible for shipping damage due to improper (that is, non-original) packaging.***

---

Your dealer can order a new set of shipping materials for you if you need to ship your component and no longer have the original materials. There will be a charge for this service. We *strongly* recommend saving all packing materials in case you need to ship your unit some day.

# Specifications

- **Frequency response:** 20 Hz – 20 kHz, +0dB, –0.2dB
- **Total harmonic distortion:** 0.005% @ 1 kHz, A-weighted
- **Maximum output (XLR):** 10 V rms
- **Maximum output (RCA):** 5 V rms
- **Dynamic range:** 100 dB (or better)
- **Signal to noise ratio (balanced outputs):** 105 dB (ref: 0 dB output)
- **Channel separation:** better than 100 dB
- **Analog filter:** Bessel-tuned, linear phase to 40 kHz
- **Low-level linearity:** deviation less than 1 dB to -90 dB FS  
(1 kHz, 20 bit data, 80 kHz measurement bandwidth)
- **Volume range:** 126 steps
- **Volume resolution:** 0.5 dB steps above 16 in display,  
gradually increasing step size at lower levels
- **Digital inputs:** 6 s/PDIF electrical on RCA  
2 s/PDIF electrical on BNC  
1 AES/EBU electrical  
2 each EIAJ optical
- **RF Demodulator input:** Digital Input 11 (w/opt. RF demodulator card)
- **Digital input impedance:** 75Ω (s/PDIF electrical)  
110Ω (AES/EBU electrical)
- **Other inputs:** 6 channel PAV analog pass-through
- **Digital output:** 1 RCA (s/PDIF) on remote zone card
- **Digital output impedance:** 75Ω (s/PDIF electrical)
- **Main analog outputs:** 6 balanced outputs  
6 single-ended outputs
- **Analog output impedance:** 10Ω
- **Available trigger current:** 80 mA per outlet
- **Power consumption:** less than 70 W
- **Mains voltage:** 100V, 120V, 200V, 230V, 240V,  
factory set for destination country only
- **Mains frequency:** 50 or 60 Hz,  
factory set for destination country only
- **Overall dimensions:** See “Dimensions”
- **Shipping weight:** 34 lbs. (15.5 kg)

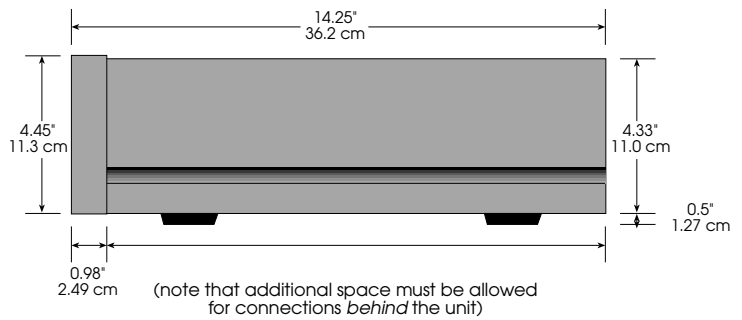
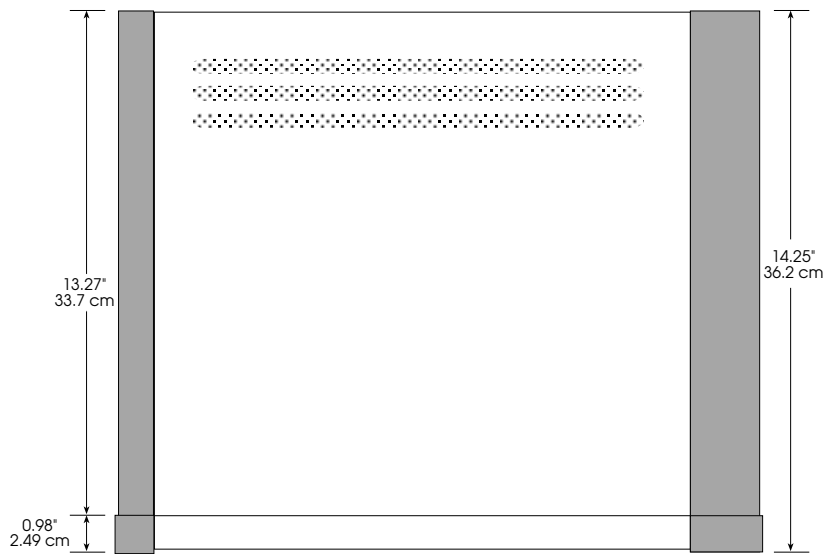
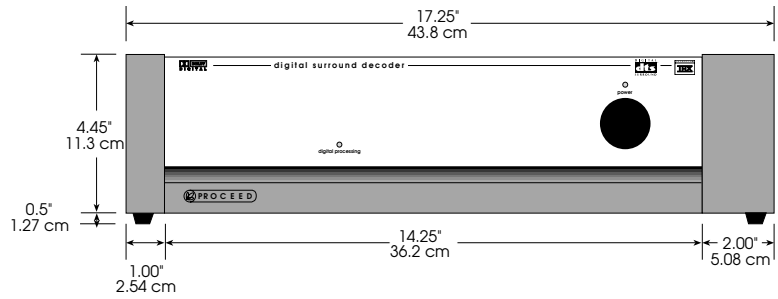
For more information, see your Proceed dealer, or contact:

***Madrigal Audio Laboratories, Inc.***, P.O. Box 781,  
2081 South Main Street, Middletown, Connecticut 06457 USA  
Telephone (860) 346-0896 FAX (860) 346-1540

*If purchased in the United States or Canada, the warranty on this Proceed product is owner-transferable. If your product requires service, you must obtain a Return Authorization before shipping it to Madrigal. Madrigal reserves the right to repack any product which arrives improperly packed for shipment and to charge the owner for the required packing material. For warranty information and conditions on products purchased in other countries, contact your local dealer or distributor.*



# Dimensions





\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_





\_\_\_\_\_

# Proceed PAV/PDSD System Quick Start...

The PAV/PDSD is an exciting system, and we understand that many owners will be anxious to get it up and running as quickly as possible. **What follows is not a replacement for a complete setup of the system.** Rather, it is provided so you can get some music playing from a single digital source as quickly as possible. It assumes that your system is already set up in other respects (*speakers connected to power amps, etc.*). Once done, please read up on how to do a complete setup and calibration in order to get the most from your investment (*or, have your dealer/installer do it for you*).

## 1 MAKE THE PHYSICAL CONNECTIONS; TURN EVERYTHING ON

- connect the Communications Cable between the PAV and the Digital Surround Decoder;
- connect the outputs of the Digital Surround Decoder to your power amplifiers, as indicated (front, rear, center, sub);
- connect a CD transport to any matching digital input connector on the Digital Surround Decoder, noting which connector you use;
- ensure that the main video output of the PAV is connected to your television (so you can see the on screen menus).
- turn on all the components involved (CD transport, PAV, PDSD, television, amplifiers). Turn the amps on last (always a good habit with any audio system).

## 2 PRESS AND HOLD THE CD1 BUTTON ON THE FRONT OF THE PAV

This shortcut of pressing and holding an input button will take you directly to the Define Button menu for that button.

## 3 TELL THE SYSTEM WHICH CONNECTOR YOU USED FOR YOUR CD TRANSPORT IN STEP 1

We have no way of knowing what sort of digital interface your particular CD transport might use (AES/EBU? RCA? BNC? EIA-J?), but logically, you'd like to be able to use your main CD player with the button labeled "CD1." This allows you to use whatever connector you *need* to use in conjunction with the button you'd *like* to use.

- using the **volume +/-** buttons, move the arrow cursor down to the line that defines your first audio connection (1: **Digital, Dig 1**) and press **enter**.
- then move the arrow cursor down (**volume +/-**) to the line that defines which connector is being used, and press **enter** again.
- with the cursor changed to an **x** instead of an arrow, the **volume +/-** buttons will allow you to select whatever digital input connector you used in Step 1.
- when done, press **enter** again to save your change.

## 4 PRESS MENU TO EXIT THE MENU SYSTEM, AND ENJOY

Make sure the volume is on at a low level before you fire up your CD player; press the **cd1** button, and raise the volume to a comfortable level. According to the factory defaults (which you can easily change), **cd1** is preset to come on in 2-channel/surround off.

You should properly calibrate the system so all speakers are playing at the proper volumes before you listen critically to multi-channel audio. Performing this calibration only takes only a few more minutes, but you should read up on it a bit first. You can enjoy the PAV/PDSD system in regular stereo until then (while you are reviewing the manual).

We suggest you read the entire manual, of course. However, previous owners of the PAV will want to pay particular attention to *Using the Menu System*, since it operates a bit differently than it has in the past. After that, review the section on *The Setup Menu* to get a better idea of how the combined PAV/PDSD system differs from the PAV alone.

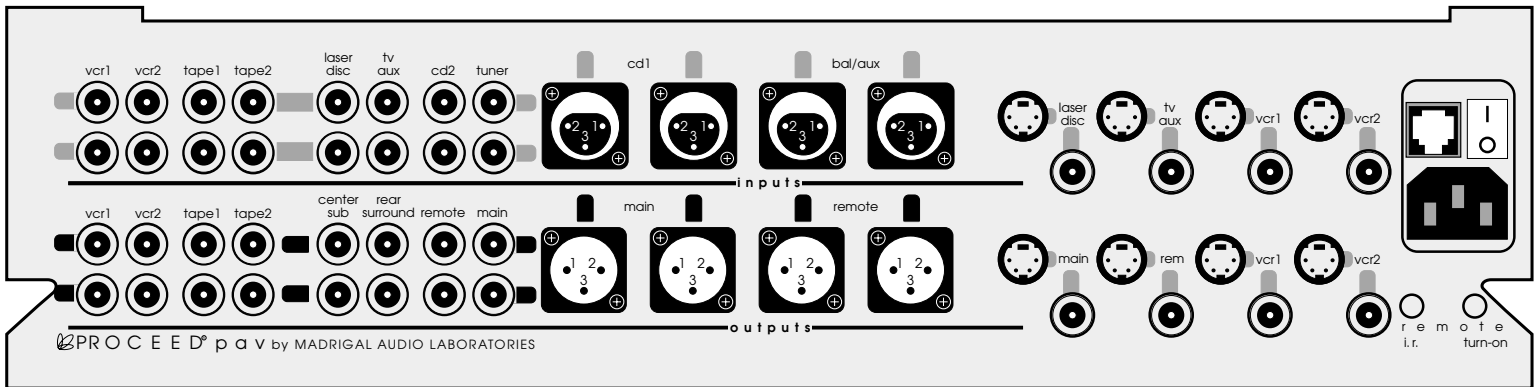
---

**Whenever you finish connecting all your digital components to the Digital Surround Decoder, keep track of where you connect your various components using the erasable marker provided and the Hookup Record on the reverse of this page.**

---

# Proceed PAV/DSD System Hookup Record

Using the supplied erasable marker, please note the physical connections of your various sources on both the PAV and the Digital Surround Decoder (DSD). Then use this card as a reference when you set up your source buttons to work the way you wish them to work. (See the DSD Operating Manual for more details.)



### single-ended inputs:

vcr1: \_\_\_\_\_  
 vcr2: \_\_\_\_\_  
 tape1: \_\_\_\_\_  
 tape2: \_\_\_\_\_  
 laser: \_\_\_\_\_  
 tv/aux: \_\_\_\_\_  
 cd2: \_\_\_\_\_  
 tuner: \_\_\_\_\_

### balanced inputs:

cd1: \_\_\_\_\_  
 bal/aux: \_\_\_\_\_  
*(bal/aux normally receives the DSD's remote output)*

### record outputs:

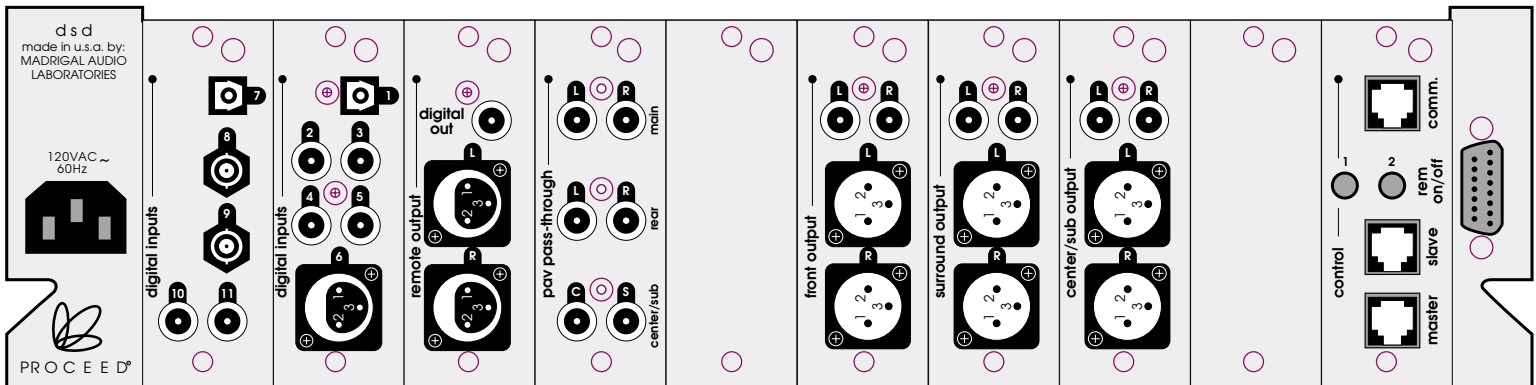
vcr1: \_\_\_\_\_  
 vcr2: \_\_\_\_\_  
 tape1: \_\_\_\_\_  
 tape2: \_\_\_\_\_

### video input:

laser: \_\_\_\_\_ (S or comp?)  
 tv/aux: \_\_\_\_\_ (S or comp?)  
 vcr1: \_\_\_\_\_ (S or comp?)  
 vcr2: \_\_\_\_\_ (S or comp?)

### video output:

vcr1: \_\_\_\_\_ (S or comp?)  
 vcr2: \_\_\_\_\_ (S or comp?)



### digital inputs:

dig 1: \_\_\_\_\_  
 dig 2: \_\_\_\_\_  
 dig 3: \_\_\_\_\_  
 dig 4: \_\_\_\_\_  
 dig 5: \_\_\_\_\_  
 dig 6: \_\_\_\_\_  
 dig 7: \_\_\_\_\_  
 dig 8: \_\_\_\_\_  
 dig 9: \_\_\_\_\_  
 dig10: \_\_\_\_\_  
 dig11: \_\_\_\_\_

### connection type:

(eia-j optical)  
 (s/pdif on rca)  
 (s/pdif on rca)  
 (s/pdif on rca)  
 (s/pdif on rca)  
 (aes/ebu on xlr)  
 (eia-j optical)  
 (s/pdif on bnc)  
 (s/pdif on bnc)  
 (s/pdif on rca)  
 (s/pdif on rca, or RF demodulator)

### remote output:

analog: \_\_\_\_\_  
 digital: \_\_\_\_\_  
*(analog signal normally sent to bal/aux input of PAV)*

### optional channels (not shown):

aux1: \_\_\_\_\_  
 aux2: \_\_\_\_\_



## MADRIGAL

Madrigal Audio Laboratories, Inc.  
2081 South Main Street, P.O. Box 781  
Middletown, Connecticut 06457 USA

Telephone: (860) 346-0896  
Fax: (860) 346-1540  
<http://www.madrigal.com/>

## P R O C E E D<sup>®</sup>

*is a registered trademark of Madrigal Audio Laboratories, Inc.*

**H** a Harman International company

*"Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.  
Confidential Unpublished Works. ©1992-1997 Dolby Laboratories, Inc. All rights reserved.*

*The THX logo, THX, Home THX, Home THX Cinema,  
Re-Equalization, Decorrelation, and Timbre Matching  
are registered trademarks of Lucasfilm Ltd.*

*The term DTS is a trademark of DTS Technology, LLC.*