



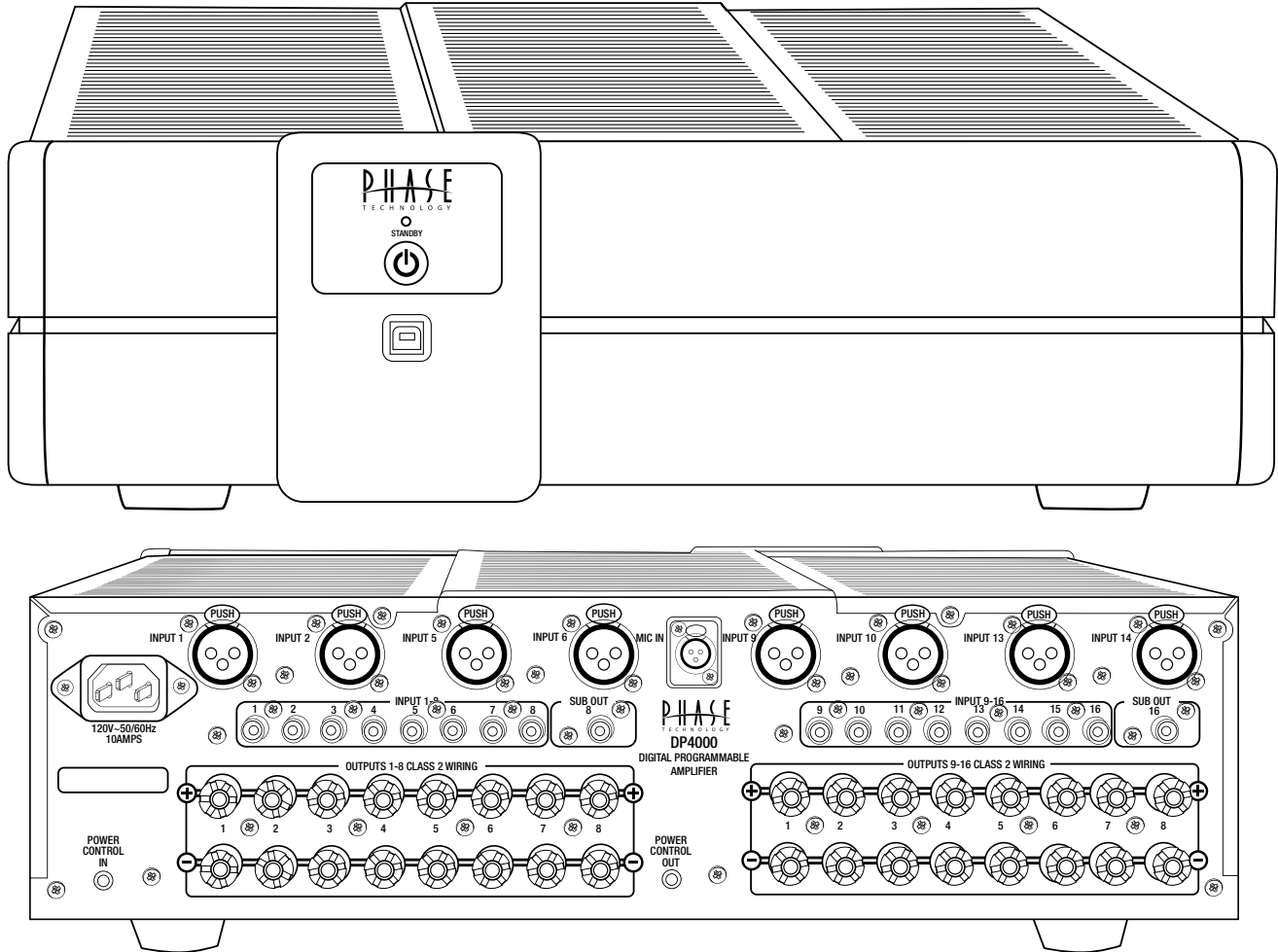
# **[dARTS: DIGITAL AUDIO REFERENCE THEATER SYSTEM]**

**DP4000**

**OWNER'S MANUAL & INSTALL GUIDE**

**DP4000 CLASS-D 16-CHANNEL DIGITAL AMP/CONTROLLER**

**[FEATURES]** • AUDYSSEY MULTEQ XT32 CALIBRATION SOFTWARE • MOLDED ALUMINUM ENCLOSURE • LARGE DUAL MODE POWER SUPPLY • EIGHT (8) XLR BALANCED INPUTS • SIXTEEN (16) CONFIGURABLE INPUT/OUTPUT CHANNELS • CONTROLS UP TO FOUR (4) ROOMS OF STEREO • AUTO SWITCH

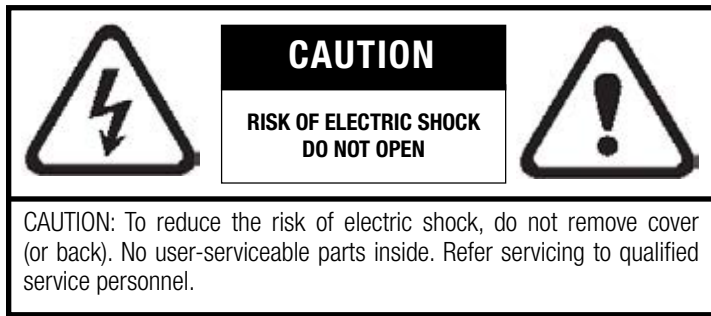


Regardless of application, serious audiophile listening or home theater, we recommend that you take the time to read this manual thoroughly before connecting speakers to your amplifier or receiver. In the highly unlikely event that you should experience a problem with set-up or operation, please contact one of our authorized dealers for assistance, or contact us directly.

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<b>SAFETY INSTRUCTIONS</b>	<b>3</b>
<b>THANK YOU FOR YOUR PURCHASE</b>	<b>4</b>
<b>GETTING STARTED &amp; PRECAUTIONARY NOTES</b>	<b>4</b>
<b>SPEAKER CONNECTIONS</b>	<b>5</b>
<b>SPEAKER PLACEMENT</b>	<b>5</b>
<b>SYSTEM WIRING &amp; CONNECTIONS</b>	<b>6</b>
<b>CONNECTIONS FROM DP4000 TO SURROUND PREAMP/RECEIVER</b>	<b>6</b>
<b>CONNECTIONS FROM DP4000 TO SYSTEM'S SPEAKERS: 1-16</b>	<b>7</b>
<b>BACK PANEL DETAILS</b>	<b>7</b>
<b>CARING FOR YOUR SPEAKERS</b>	<b>8</b>
<b>MAINTENANCE AND SERVICE</b>	<b>8</b>
<b>TROUBLESHOOTING</b>	<b>8</b>
<b>WARRANTY</b>	<b>8</b>
<b>SPECIFICATIONS</b>	<b>9</b>

## [SAFETY INSTRUCTIONS]



### Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of un-insulated "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 you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**1. Read Instructions** - All the safety and operating instructions should be read before the appliance is operated.

**2. Retain Instructions** - The safety and operating instructions should be retained for future reference.

**3. Heed Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.

**4. Follow Instructions** - All operating and other instructions should be followed.

**5. Water and Moisture** - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

**6. Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

### PORTABLE CART WARNING



**7. Wall or Ceiling Mounting** - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.

**8. Ventilation** - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet

that may impede the flow of air through the ventilation openings.

**9. Heat** - The appliance should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.

**10. Power Source** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**11. Power Cord Protection** - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed up or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**12. Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.

**13. Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

**14. Object and Liquid Entry** - Care should be taken so that neither objects fall nor liquids spill into the inside of the appliance.

**15. Damage Requiring Service** - The application should be serviced by qualified service personnel when:

- the power supply cord or the plug has been damaged,
- objects have fallen onto or liquid has been spilled into the appliance,
- the appliance has been exposed to rain,
- the appliance does not appear to operate normally or exhibits a marked change in performance, or
- the appliance has been dropped or the cabinet damaged.

**16. Servicing** - The user should not attempt to service the appliance beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.

**17. Grounding or Polarization** - Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

### APPLICABLE FOR USA, CANADA OR WHERE APPROVED FOR USAGE

**CAUTION:** TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE PLUG TO WIDE SLOT, INSERT FULLY.

**ATTENTION:** POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRESE ET POUSSER JUSQU'AU FOND.

## **[THANK YOU FOR YOUR PURCHASE]**

Thank you for purchasing Phase Technology's revolutionary dARTS® (Digital Audio Reference Theater System). This exciting entertainment system will provide the best possible sound reproduction of music and video programming in any room environment, and at every seat in that room.

Please take a few moments to study this Installation Guide to get the most out of your dARTS® system. Your professional installer will make every effort to place the speakers to take into account your room's natural acoustics, but will also accommodate your needs in making them fit into your decorating plans. Phase Technology's perfectly matched speakers, and the Audyssey Laboratories MultEQ® XT 32 room correction software as implemented by your installer, will then work together to overcome the acoustic anomalies of your room and give you ideal sound at every seating location.

Our speakers are the result of over five decades of designing and manufacturing. We hold many key patents in loudspeaker technology including the soft-dome tweeter. Our mission, our passion is to constantly advance the art and science of accurate audio reproduction. Our dedication insures your new speakers will accurately reproduce all the impact, detail and delicacy of today's digital technology.

Regardless of application, serious audiophile listening or home theater, we recommend that you take the time to read this manual thoroughly before connecting speakers to your amplifier or receiver. In the highly unlikely event that you should experience a problem with set-up or operation, please contact one of our authorized dealers for assistance, or contact us directly.

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## **[GETTING STARTED AND PRECAUTIONARY NOTES]**

Referring to Audyssey's calibration guide, your installer will use a professional calibration microphone and a digital audio interface with his laptop computer to analyze your room's acoustic properties as they affect the entire seating area. This will give him the information to properly set up the volume levels and delays for each speaker, and then it will automatically generate a series of correction filters to load into your Phase Technology® DP4000 amplifier/speaker controller. This correction process will then return your speakers to their original perfectly matched levels, and remove the room's harmful acoustic contributions, leaving you with superb sonic performance that sounds the same at every seat in the room.

Speaker placement is very subjective. Placement follows the guidelines for the developers of multi-channel home entertainment systems, yet is also guided by personal preferences. The proper spacing, location and adjustment of front, rear and center-channel speakers as well as subwoofers are critical for complete enjoyment of your new speakers. This manual covers these topics thoroughly.

Before connecting your new speakers or other system components, turn the system power off and unplug your amplifier to avoid any possibility of damage from power surges or unbalanced loads before the system is properly connected.

Observe speaker polarity carefully! Every cable, speaker terminal and amplifier connection are clearly marked to show their positive (+) and negative (-) polarities. For ideal system performance, always connect the positive side of the cable (marked with a stripe, color and /or other indicator) to the positive terminals on your speakers and amplifier and the negative side of the cable to the negative terminals.

High volume settings that produce audible distortion – indicating an under-powered amplifier – could eventually damage your speakers and your amplifier.

Begin and end listening sessions at low volume levels so you will not power up your system the next time with possibly harmful high voltages. A damaging surge also could result if you change the input source (from FM tuner to CD player, for example) at high volume levels. If you suspect that one channel of your amplifier has failed, have it repaired immediately by your dealer. Damage to your speakers could occur if you switch between the good and defective channels.

## [SPEAKER CONNECTIONS]

The following instructions apply whether you are using a separate amplifier or Home Theater receiver. For simplicity we will use the term “amplifier” throughout this manual to mean both.



**SPECIAL NOTE: TURN OFF AND UNPLUG YOUR AMPLIFIER BEFORE CONNECTING SPEAKERS.**  
**SPECIAL NOTE: OBSERVE SPEAKER POLARITY CAREFULLY!**

Every cable, speaker and amplifier is clearly marked to show their positive (+) and negative (-) terminals. Amps and speakers may use some combination of these symbols and/or colors to indicate positive (usually red) and negative (usually black or white) connections. One strand of your cable will also be ridged and/or marked with a colored line or other indicator on the positive side. For proper polarity and, thus, ideal system performance, always connect the positive side of the cable to the positive terminals on your speakers and amplifier and the negative side of the cable to the negative terminals.

## [SPEAKER PLACEMENT]

Phase Technology’s ability to precisely match each speaker to one another yields a much more enveloping and accurate soundfield. This immersive entertainment experience will be enhanced if you will follow a few basic rules of speaker placement. The front speakers (left, center, right) should all be placed in as close to a horizontal line as possible, and should be at or slightly above ear level while seated. The left and right speakers should be far enough apart (6- 8 feet if seated no more than 12 feet from your video display) to separate the information from each channel, but not so far as to create a discontinuity with the image on the video display. With a large projection screen, they should be placed as close to the sides of the screen as is practical. In addition to being in line with the front channels, the center speaker should be as close to the center of the display as possible, whether above/below the display, or behind a perforated projection screen. Phase Technology® speakers are magnetically shielded so they will not interfere with any type of television set. Please place the included rubber feet on the bottom corners of each speaker to keep it from vibrating against the shelf or stand on which it sits.

Each of the dARTS® speakers (except for subwoofers) includes Phase Technology’s acclaimed variable-axis soft dome tweeters. This allows your installer to direct high frequencies toward your listening location for even greater latitude in speaker placement, and more precise imaging and localization of sound. Please adjust these tweeters by carefully pressing on the outer rim of the housing only, avoiding contact with the actual soft dome speaker element. These adjustments, if needed, should be done prior to your installer calibrating the system to your room, so the correction process will read the tweeters’ energy accurately at each listening position.

The surround speakers should be placed well above ear level in most rooms. Whether you are using direct- radiating speakers or our switchable dipolar/bipolar speakers for the surround channels, please pay attention to placing them to create a large and enveloping soundfield. In a 5.1-channel configuration, you will use one pair of surround speakers. If your listening area is near the back wall, the best results can often be obtained by placing the surround speakers on the side walls, centered on your listening positions. With speakers directly to the sides, switching the surround speakers into “Dipole” mode (with their front-panel toggle switch) will a very diffuse, non-directional soundfield. If you prefer to have more localization of the surround effects, select the “Bipole” mode or use direct-radiating speakers to match the front channels. If your seating is away from the back wall, you can choose to mount your surround channels either beside or behind the listening position. Experiment with both “Dipole” and “Bipole” surround settings with your installer to see which sounds best to you, so he can calibrate the room to your taste.

In a 6.1-channel setup, a pair of surround speakers will be placed to the sides of your listening area, with an additional rear center channel speaker behind you. If you choose to implement 7.1-channel surround you will use a pair of surrounds to the sides, and another pair behind you, spaced evenly to fill the room. Again, please experiment with your installer to determine which modes sound best for each pair before he calibrates your room to determine the correction curves for each channel. If you change your mind later, you will need to have the room recalibrated to accommodate the new speaker settings. Also, if you change your room’s furnishings in any significant way (floor coverings, drapes, furniture) please have your installer recalibrate the room to return your system to its original target response curves.

Your dARTS® powered subwoofer(s) are specifically designed to blend well with the dARTS® main speakers, and to perform well with either music or movies, augmenting the deep bass which is such an integral part of our emotional involvement with our entertainment choices. Although very deep bass is essentially non-directional, the higher bass frequencies and the initial attacks of each note are often shared by the main speakers. Thus, subwoofers usually blend best when they are relatively close to the front channels. The dARTS® Custom Built-In line offers subs which are the same width as the main speakers, so they can be readily used as speaker stands, ensuring proper integration and impact. If you do use the system in this way, please have your installer mount the included

connecting brackets to lock the subs and main speakers together, with their fronts vertically aligned. The brackets allow for vertical adjustment of the main speakers to accommodate the use of isolation feet. The Audyssey Laboratories MultEQ® XT 32 room calibration software WILL account for sub placement (as it does for all speakers) while measuring your room and designing the correction curves, but the closer you can come to ideal placement, the better will be the results.

**[SYSTEM WIRING AND CONNECTION]**

Phase Technology’s dARTS® systems are unique in that all speakers are either bi-amplified or tri-amplified. This means that each tweeter, midrange, and woofer set is connected to their own individual amplifier channel to allow for greater dynamic performance and flexibility in configuration. To take advantage of these connections, front main and surround channels need to be wired with four-conductor speaker wire. The horizontal center channel is tri-amplified, so it needs to have six conductors available. Phase Technology recommends using 14 AWG speaker wire (no smaller than 16 gauge) for each of these connections. Wire with higher gauge numbers is thinner, and is not recommended.

The dARTS® subwoofer includes its own 500-watt on-board power amplifier. It will need to have a shielded audio interconnect run to its “LINE INPUT L” jack from the DP4000 amplifier/controller’s “SUB OUT 8” jack. The subwoofer’s amplifier features both line-level inputs and outputs. To add additional subwoofers to increase the bass performance in a large room, have your installer run an additional shielded audio interconnect from the first sub’s “LINE OUTPUT L” jack to the second sub’s input “LINE INPUT L” jack, continuing on to as many subs as desired. The sub amp’s volume control should be set at the “12:00” position for the calibration process, but can then be raised or lowered a bit to match your own desired bass levels in the room.

The heart of the dARTS® system is the DP4000 digital amplifier/controller. It consists of a 16-channel power amplifier (up to 250 w/ ch), the setup firmware used by Phase Technology to individually match your speakers to each other (frequency response, crossover, time alignment), and space for the room correction program your installer will run to calibrate the system to your room. Each of your speakers will connect to the DP4000 with either two or three pairs of speaker wire. Your surround processor or receiver’s preamp outputs will also be connected to the DP4000. If desired, your installer can connect a 12 V DC trigger to the amplifier’s “POWER CONTROL IN” jack from your surround processor or your automated control system to turn the amplifier on and off. There is also a “POWER CONTROL OUT” jack available to pass on the control voltage to another component in your theater system. The following tables show how each channel’s wiring is connected to the amplifier/controller’s input and output terminals:

<b>[CONNECTIONS FROM DP4000 TO SURROUND PREAMP/RECEIVER]</b>		
<b>DP INPUT NUMBER</b>	<b>XLR BALANCED INPUT NUMBER</b>	<b>PREAMP OUTPUT CHANNELS</b>
1	1	LEFT FRONT
2	2	RIGHT FRONT
5	3	CENTER CHANNEL
6	4	SUBWOOFER
9	5	LEFT SURROUND
10	6	RIGHT SURROUND
13	7	LEFT REAR SURROUND IN 7.1 SYSTEM; REAR CENTER IN 6.1 SYSTEM
14	8	RIGHT REAR SURROUND IN 7.1 SYSTEM

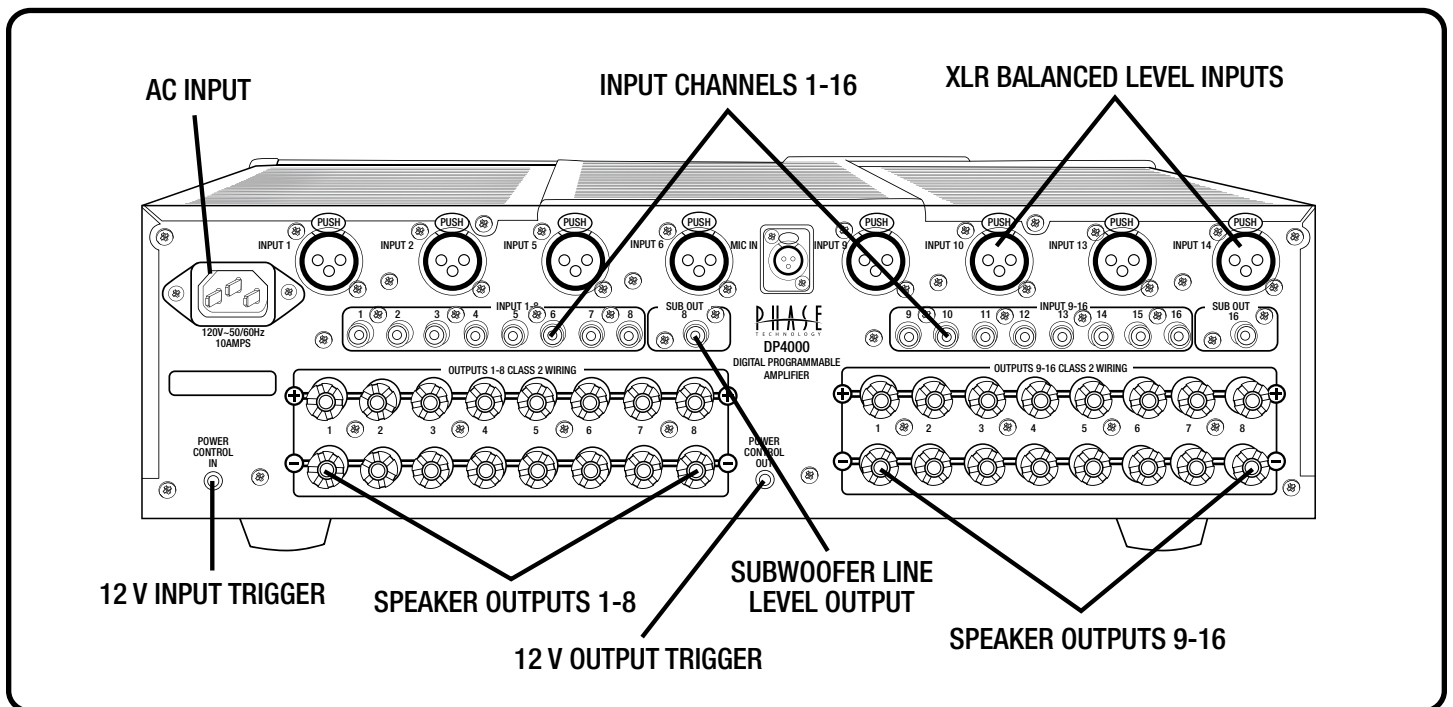
**PLEASE NOTE:** Although these connecting connections directions are not “normal,” based on conventional surround systems, they ARE correct for the dARTS system, and must be followed exactly for the system to operate properly and safely. Please do not plug the amplifier into AC power or turn it on until ALL system connections have been securely made.



**[CONNECTIONS FROM DP4000 TO SYSTEM'S SPEAKERS: 1-16]**

DP OUTPUT NUMBERS	SPEAKER CONNECTIONS	
	INPUT	XLR INPUT
1	1: LEFT FRONT WOOFER	1: LEFT FRONT SPEAKER
2	2: LEFT FRONT TWEETER	1: LEFT FRONT SPEAKER
3	3: RIGHT FRONT WOOFER	2: RIGHT FRONT SPEAKER
4	4: RIGHT FRONT TWEETER	2: RIGHT FRONT SPEAKER
5	5: CENTER CHANNEL WOOFER	5: CENTER CHANNEL SPEAKER
6	6: CENTER CHANNEL WOOFER/MIDRANGE	5: CENTER CHANNEL SPEAKER
7	7: CENTER CHANNEL TWEETER	5: CENTER CHANNEL SPEAKER
8 (RCA "SUB OUT 8" JACK)	8: TO SUBWOOFER	6: SUBWOOFER
9	9: LEFT SURROUND WOOFER	9: LEFT SURROUND SPEAKER
10	10: LEFT SURROUND TWEETER	9: LEFT SURROUND SPEAKER
11	11: RIGHT SURROUND WOOFER	10: RIGHT SURROUND SPEAKER
12	12: RIGHT SURROUND TWEETER	10: RIGHT SURROUND SPEAKER
13	13: LEFT REAR WOOFER IN 7.1 SYSTEM OR REAR CENTER WOOFER IN 6.1 SYSTEM	12: LEFT REAR SPEAKER
14	14: LEFT REAR TWEETER OR REAR CENTER WOOFER IN 6.1 SYSTEM	12: LEFT REAR SPEAKER
15	15: RIGHT REAR WOOFER	14: RIGHT REAR SPEAKER
16	16: TO RIGHT REAR TWEETER	14: RIGHT REAR SPEAKER

**[BACK PANEL DETAILS]**



## **[CARING FOR YOUR PHASE TECHNOLOGY SPEAKER]**

The DP4000 is molded in an aluminum enclosure and finished with a high degree of craftsmanship. We recommend using a lint-free rag with a small amount of glass cleaner to maintain the long-lasting beauty of the finish. Avoid products containing silicones, oils, oil derivatives, or solvents. Aluminum enclosures may be cleaned with a damp cloth as necessary.

## **[MAINTENANCE AND SERVICE]**

Because of Phase Technology's uncompromising quality control programs, it's unlikely that your DP4000 will ever need service if connected and used as outlined in this Owners' Manual. In the unlikely event that a problem does occur, please contact your Phase Technology dealer. Your dealer has the necessary factory-authorized parts and trained technicians to quickly restore your speaker to its original performance specifications.

## **[TROUBLESHOOTING]**

### **NO SOUND**

1. Verify that all components are plugged in and turned on.
2. Check all speaker wires and cables for loose connections.
3. Check to see if you have selected the proper source on your amplifier.

### **VOICES DO NOT APPEAR TO COME FROM BETWEEN THE SPEAKERS / BASS RESPONSE IS WEAK**

1. Verify that all speaker connections from the amplifier to the speakers are running PLUS+ to PLUS+ and MINUS- to MINUS-.
2. Check to see if there are any furnishings or plants that may be blocking the output of a speaker.

### **SOUND, BUT NO BASS (MOST LIKELY IN SYSTEMS WITH A SUBWOOFER)**

1. Verify that the subwoofer is plugged into an AC outlet and power is turned on.
2. Check that the speaker wire / cable going from the amplifier/receiver to the subwoofer is securely fastened.
3. Check the volume control of the subwoofer.
4. Refer to your amplifier/receiver manual to make sure you have adjusted its bass output properly.

### **MUDDY OR BOOMY BASS**

1. Check the volume control for the subwoofer. Excess volume can cause speakers to sound distorted and unnatural.
2. Try adjusting the crossover control on the subwoofer or the subwoofer setup on your receiver to a slightly lower frequency (example: reduce from 120 Hz to 80 or 60 Hz).
3. If the subwoofer or full size speaker is close to a corner, side or back wall, try moving it away from the wall. This may reduce the "boomy" bass considerably.
4. Bookshelf speakers placed in a semi-enclosed space or cabinet can artificially emphasize bass output. Reduce the bass control on your amplifier or move the speakers to the front of the cabinet. Alternatively, reposition the speakers to a more open location.

### **DISTORTED SOUND FROM THE SPEAKERS**

1. This problem is usually caused by setting the volume control too high. Reduce the amplifier/receiver volume to a lower level.
2. If noise and distortion are audible at higher volume levels, your amplifier may not be powerful enough. Consider upgrading to a unit with higher power.

*NOTE: Remember, even though your Phase Technology speakers can handle considerable power levels, ANY speaker if used improperly can be damaged. Consult your Phase Technology dealer for assistance in choosing a new amplifier or receiver.*

## **[WARRANTY]**

**LIMITED WARRANTY:** Phase Technology warrants its loudspeakers to be free from defects in material and workmanship for a period of ten (10) years for speaker product, limited lifetime for CI speakers, and three (3) years for the electronic components to the original purchaser. Purchase must be made from an authorized Phase Technology dealer.

This warranty does not cover service or parts to repair damage caused by misuse, abuse, damage while in transit, alterations, unauthorized repairs, failure to follow instructions, fire, flood or any other cause beyond the reasonable control of Phase Technology.



Defects in speaker cabinets or grilles must be brought to the attention of your dealer immediately after purchase. This warranty will be void if the products' serial number has been altered or removed.

Should your Phase Technology product require service, please call the MSE Audio customer service department for a return authorization. All merchandise returned to Phase Technology without prior authorization will be refused. For your return authorization number, please call 855.663.5600 or email sales@mseaudio.com.

<b>[SPECIFICATIONS]</b>	<b>DP4000 CLASS-D DIGITAL AMPLIFIER/CONTROLLER</b>
FREQUENCY RESPONSE	20 Hz - 20 kHz
CHANNELS	16
CROSSOVER	Parametric DSP (Adaptive)
HARMONIC DISTORTION	0.05% @ 1 kHz, 1 W
POWER OUTPUT (8Ω)	125 W x16
POWER OUTPUT (4Ω)	250 W x16
INPUTS	8 Unbalanced (XLR), 16 Unbalanced (RCA)
BINDING POSTS	Gold-Plated Screw Terminals
POWER REQUIREMENTS	120/240V AC; 50/60 Hz
DIMENSIONS	5.625" H x 17" W x 17" D
WEIGHT	21 lbs.

