

Emperor DSP-X Digital Crossover User Manual

This manual is for use only with DSP-X units supplied with
the German Physiks Emperor Mk II loudspeakers



This product complies with European Union EMC Directive (89/336/EEC)
and the Low Voltage Directive (73/23/EC)

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Revision b
Released 4th March 2022

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TABLE OF CONTENTS

SAFETY INSTRUCTIONS..... 3

SIMPLIFIED EU DECLARATION OF CONFORMITY 6

1. INTRODUCTION 7

2. HOW TO USE THIS MANUAL 7

3. UNPACKING YOUR PREAMPLIFIER 7

4. POWER SUPPLY 8

5. LOCATION 8

6. AMPLIFICATION AND SYSTEM CONFIGURATION 9

Amplifier gain settings 9

6. DSP-X CROSSOVER FRONT PANEL CONTROLS & FUNCTIONS 11

7. CONNECTING THE DSP-X CROSSOVER 12

8. CONNECTING YOUR LOUDSPEAKERS..... 13

Loudspeaker Cables..... 13

9. USING THE DSP-X CROSSOVER WITH THE EMPEROR MK II 15

Confirming the DSP-X set-up 15

About output channels volume and phase settings 16

Adjusting the output channels volume and phase settings..... 17

10. REMOVING THE DDD DRIVER SHIPPING COVERS..... 18

11. WARRANTY 18

12. SERVICE AND SUPPORT 20

13. HOW TO CONTACT US 22

14. DSP-X SPECIFICATIONS 23

15. WARRANTY REGISTRATION 24

IMPORTANT SAFETY AND INSTALLATION INSTRUCTIONS

WARNING: Do not remove the product's covers. This product contains no user serviceable parts.

WARNING: To reduce the risk of electric shock or fire, do not expose this product to rain or moisture.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of an 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 product.

SAFETY INSTRUCTIONS

WARNING: To prevent the risk of electric shock please carefully read and follow the instructions below.

1. Before attempting to use this product please read all of the safety and installation instructions and the explanation of safety symbols in this manual
2. This product must be grounded. This reduces the risk of electric shock in the event of a malfunction. This product is supplied with a power supply cable that incorporates a conductor to connect the equipment to ground and a power plug that incorporates a grounding pin. The plug must be connected to a power outlet that incorporates a ground connection and which has been properly installed and grounded in accordance with all the appropriate regulations. If the power cable or plug shows any signs of damage, please consult a qualified service technician.

DANGER: Incorrect connection of the equipment's grounding can result in a serious risk of electric shock. Under no circumstances should the cable or plug provided with this product be modified. If it will not fit in the power outlet, contact your supplier for a power cable fitted with the appropriate plug, or have an appropriate outlet installed by a qualified electrician.

NEVER use an adaptor that defeats the ground connection. This can have potentially fatal consequences.

If you have any doubt as to whether your product is properly grounded, please consult a qualified electrician.

3. The product is designed solely for operation indoors in audio and video systems in domestic environments.
4. Do not use this product in an environment that is damp or has a high relative humidity, or that is near water, such as close to a bath tub, wash basin, kitchen sink, in a damp basement, or near a swimming pool or other similar environment. Moisture can bypass the electrical insulation and pose a risk of lethal electric shock.
5. This product in combination with loudspeakers may be capable of producing sound levels that could cause permanent hearing loss. Do not operate at a high-volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

6. Do not block the ventilation slots on the top and bottom of the product. If you are positioning the product on top of a carpet, ensure that the carpet pile does not obstruct the ventilation slots on the bottom of the product. If you are placing the product on a soft surface which will come closer to the underside of the unit than the height of the feet, place a suitable flat, hard base under the product.

If you are placing the product in a cabinet, ensure that there is adequate ventilation.

7. Do not position the product near naked flames, or other sources of heat such as radiators, heaters or ovens.

Note that electric equipment, including some amplifiers, may heat up significantly during operation.

8. The product should only be connected to a power supply of the type shown on the label placed in the bottom right-hand corner of the product's rear panel – see figure 1.

9. If the product is to be left unused for a prolonged period of time, the power supply cable should be removed from the outlet.

10. Always remove cables by holding the connector. Never pull or twist the cable itself.

11. When connecting cables always ensure that the connectors are of the appropriate type and are properly aligned. Never use excessive force when inserting a plug into a socket. If a plug will not easily fit into the socket, find out why.

12. Arrange the power cable in such a way that there is no risk of it being damaged e.g. by being stepped on, by having anything placed on top of it, by someone tripping over it, having anything rolled over it, being abraded by sharp edges or by being bent in an excessively tight radius. Failure to observe these precautions may create the possibility of a fire risk and/or personal injury.

13. If the product is to be placed on a rack, stand or other supporting device, ensure that it is capable of safely supporting the weight of the product.

14. Do not allow any liquids, or foreign objects to enter the product. If this happens, immediately switch the product off and disconnect it from the power outlet, then contact qualified service personnel for assistance.

15. Always unplug the unit from the wall outlet before cleaning. All that is required is a wipe with a dry cloth or duster. Never use paint thinners or any other kind of solvent to clean this product. These constitute a fire hazard and may also damage certain plastics.

16. If you notice an abnormal smell, or smoke coming from the product, immediately switch the product off and disconnect it from the power outlet, then contact qualified service personnel for assistance.

17. In the event of any of the following occurring, you should seek the assistance of qualified service personnel.

- a. There is damage to the power supply cable or plug.
- b. The product has been exposed to rain.
- c. Objects have fallen on to the product, or liquid has been spilled and entered the product.
- d. The product does not appear to be operating normally, or exhibits a marked change in performance.
- e. The product has been dropped or the enclosure has been damaged.

18. Extreme temperature fluctuations, high humidity and extended exposure to light can damage the product and alter its appearance.

19. Observe the operating instructions of the equipment connected to this product.

20. Do not attempt to service the product beyond that described in this manual. All other servicing should be referred to qualified service personnel.

SIMPLIFIED EU DECLARATION OF CONFORMITY

DDD Manufactur GmbH hereby declares that this equipment is in compliance with directive LVD 2014/35/EU, ERP 2009/125/EG, EMC 2014/30/EU and RoHS 2011/65/EU.

1. INTRODUCTION

The German Physiks Emperor DSP-X digital crossover is a 3-band unit with balanced and unbalanced outputs for each section. It has balanced and unbalanced bypass outputs for the left and right inputs to allow extra sub-woofers to be connected to the system.

The level of each of the six output channels may be adjusted over the range +/- 4dB using the front panel **Level** control. This provides a simple way to compensate for imbalances in the listening room's frequency characteristic. The phase of each output channel may be switched between in-phase and out of phase using the menu.

The DSP-X is supplied as standard with the German Physiks Loreley Mk III, Emperor Mk II and Gaudi Mk III loudspeakers so that they may be used in active systems. The DSP-X will only be programmed with the software necessary for it to work with the German Physiks loudspeaker it is supplied with.

It may also be used with the other loudspeakers in the German Physiks range, but they must be ordered as active versions. It cannot be used with a loudspeaker that already has a passive crossover fitted.

It is also possible to use the DSP-X with other makers' loudspeakers, provided it has been programmed with the appropriate crossover characteristics. Please consult the factory for details.

A 12V trigger input is provided. When this is connected to a device with a compatible trigger output, switching the connected device on, or to standby, will automatically switch the DSP-X on, or to standby, provided that the rear panel power switch is set to on and the unit is connected to a mains supply. A 12V trigger output, which is looped through from the input, is also provided to allow connection to other compatible devices.

2. HOW TO USE THIS MANUAL

This manual is intended to give you all the information you need to safely install, connect, configure and use the German Physiks Emperor DSP-X digital crossover.



Please read this manual carefully before attempting to install or use this product. Failure to follow instructions in this manual may result in damage to the product which will not be covered by the warranty.



The DSP-X should only be used with the loudspeaker it has been programmed for. Failure to follow this instruction may result in the loudspeaker being damaged.

Please keep this manual in a safe place so that you can refer to when necessary.

Please observe all warning notices on the product and in this manual. If you have not already done so, please review the safety instructions on page 3 of this manual.

3. UNPACKING YOUR DSP-X



The unit weighs approximately 35kg (77lbs). To avoid the risk of personal injury, it must not be lifted by one person alone. Always have help when moving the unit.

Please keep all of the packing materials in case you need to ship the unit. If you need to ship the unit, you must use the original shipping carton. The use of any other packing may result in the product sustaining

damage in transit. Such damage is not covered by the warranty. Replacement shipping cartons may be obtained via your German Physiks dealer, national distributor, or directly from the factory.

After unpacking, please confirm that you have the following items:

Item	Quantity	Description
1	1	Emperor DSP-X digital crossover
2	1	Leather case containing the user manual
3	1	Power lead
4	1 pair	Cotton gloves

If any of these items is missing or damaged, please contact the supplier.



Check that the power lead supplied is fitted with a plug that matches the power outlet you plan to use.

4. POWER SUPPLY

This product should only be connected to a power supply with a voltage included in the range indicated on a label on the bottom right corner of the rear panel, as shown in the two examples in figure 1 below.

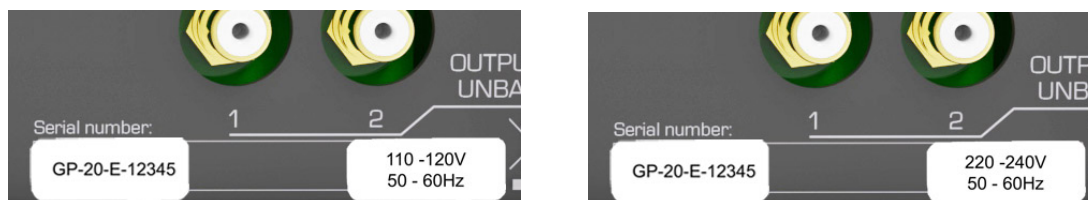


Figure 1. Product operating power supply indication label.

Ensure that the maximum power supply voltage does not exceed the upper limit of the operating voltage range that the unit has been set for, otherwise serious damage may occur. If the voltage of the power supply that you intend to use is not within the range indicated on the unit's back panel, do not connect the unit to the power supply and consult your dealer.



If the label is missing, do not connect the unit to the power supply and consult your dealer.

5. LOCATION

The crossover may be placed on a stand or shelf, provided it is safely able to support its weight.

It may also be placed directly onto the floor, provided that the ventilation slots on the underside of the preamplifier are not obstructed by a carpet or other floor covering. The clearance between the underside of the preamplifier and the floor covering should be the same as it would be if the preamplifier was placed on a hard surface. If necessary, find a means to raise the preamplifier up to ensure the necessary clearance, or place it on a flat base.

Do not place anything on top of the unit, as this may obstruct the ventilation slots on its upper surface.

Whilst the crossover's power supply has been designed to have a low external magnetic field, we recommend that it is not sited close to sensitive items such as phono cartridges or phono stages.

Where ever the crossover is located, allow a clearance of at least 5cm (3.5") above the unit.

A clearance of at least 15cm (6") should be allowed behind the preamplifier so that cables may be routed without the need to impose sharp bends.

6. AMPLIFICATION AND SYSTEM CONFIGURATION

The Emperor Mk II must be tri-amped and will require three power amplifiers for each loudspeaker. This can be provided by any convenient mix of mono and stereo power amplifiers. The minimum rating for the power amplifier used for each section of the loudspeaker is shown below.

DDD section:	Minimum power 200W/4ohms
Woofers section:	Minimum power 200W/4 ohms
Sub-woofer section:	Minimum power 250W/4ohms

Each power amplifier must be driven via the Emperor DSP-X crossover that is supplied with these loudspeakers.

A basic connection diagram for one channel of the system is shown in figure 2.



Under no circumstances should a power amplifier that is connected to the Emperor Mk II be driven directly by a source without the use of the DSP-X. Any damage caused by a failure to observe this warning will not be covered by the warranty.

Amplifier gain settings

All six power amplifiers in the system must have the same gain. Please refer to the amplifiers' user manuals for specifications and details of whether the gain can be changed and how to do this.



If it is necessary to work on the inside of an amplifier to change the gain setting, please consult a qualified technician. Under no circumstances carry out any work on an amplifier while it is still connected to the main power supply. There may be dangerous voltages inside an amplifier even after it has been disconnected from the main power supply for some time. Failure to observe this warning may result in injury or death.

The gain settings on the German Physiks Emperor integrated, stereo power and mono power amplifiers may be adjusted from the front panel. Please refer to the appropriate user manual for details.

The Emperor DSP-X crossover front panel **Level** control provides a range of adjustment of +/- 4dB for each output channel. If the gain differences of the amplifiers you are using are within this range, you can use this control to compensate for this. If you do this however, you will reduce the amount of adjustment you have for compensating for any frequency response deficiencies in your listening room.

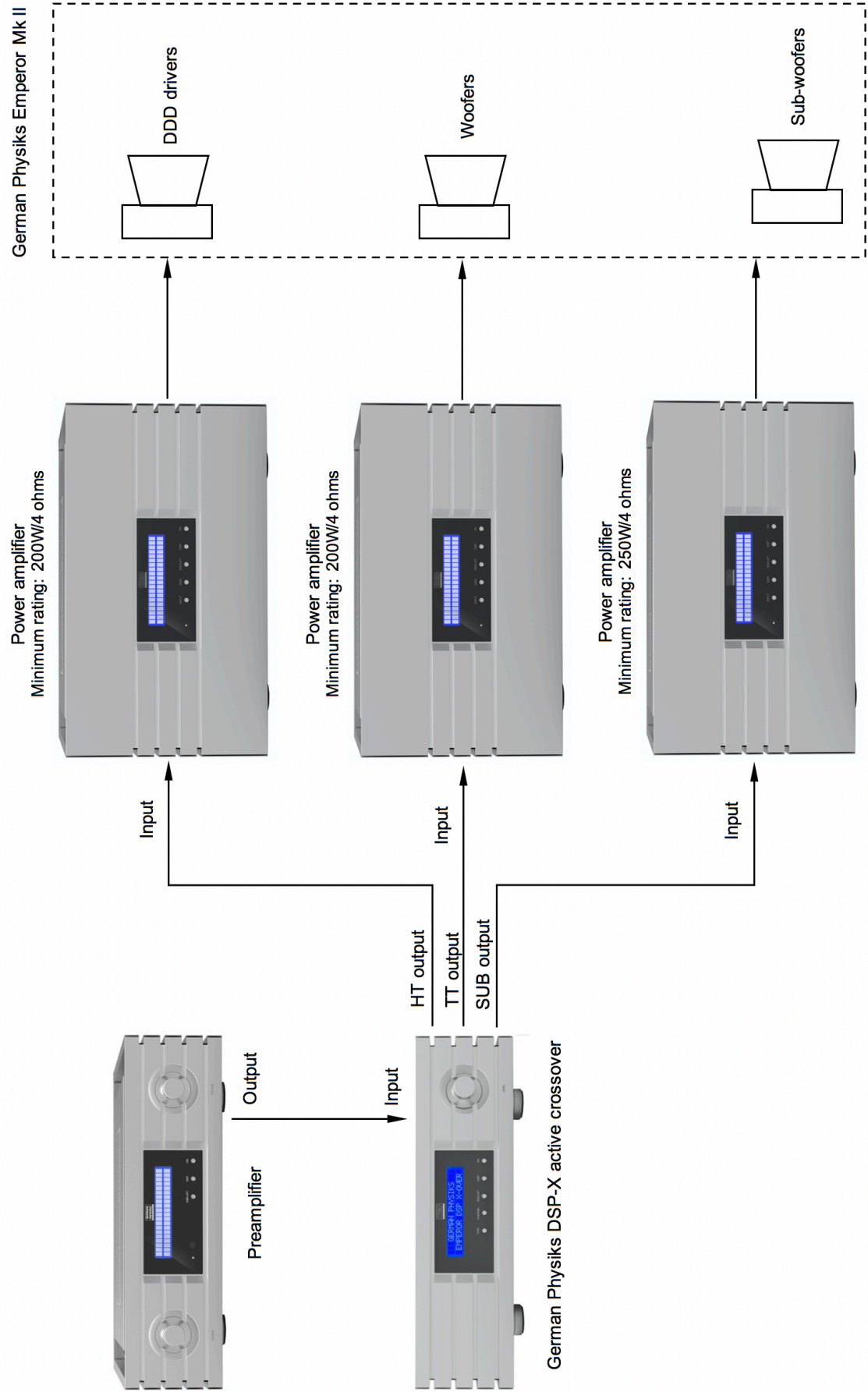


Figure 2. System connection diagram for one channel.

6. DSP-X CROSSOVER FRONT PANEL CONTROLS & FUNCTIONS

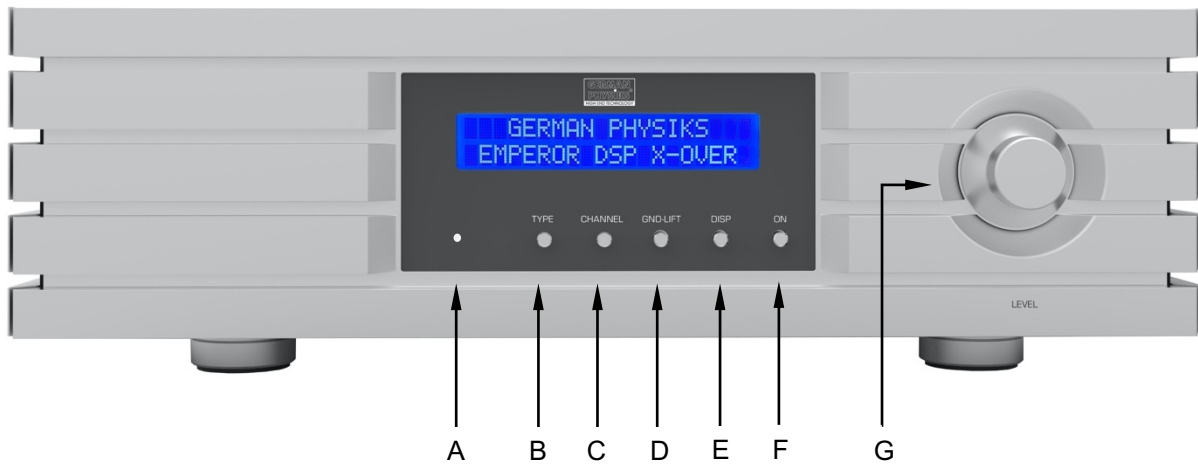


Figure 3. DSP-X crossover front panel.

- A. **Power indicator:** Indicates that the crossover is in standby mode. This goes out when the crossover is on.
- B. **Type button:** This selects the crossover programme in use. Successive presses of this button cause the display to show the model names of the German Physiks loudspeakers that the unit can be programmed to work with. This unit has been supplied with a set of Emperor Mk II loudspeakers, so only the Emperor Mk II crossover software has been loaded. Consequently, whatever model name is shown in the bottom line of the display, it will always be the crossover software for the Emperor Mk II that is loaded and operating. This is done to prevent the loudspeaker being used with the wrong crossover software, which might damage the loudspeaker.
- C. **Channel:** This is used to set the volume and phase of each output channel. Successive presses of this button displays first the left and then the right channel status of each output channel. Turning the **Level** control clockwise increases the volume of the selected output channel and turning it anti-clockwise decreases the volume. The range of adjustment is +/-4dB.

Pressing the **Level** control toggles the phase of the selected output channel between in-phase and out-of-phase.

- D. **Ground lift switch:** This disconnects the preamplifier's signal ground from the chassis safety ground and is useful in eliminating hum when this is caused by a ground loop. This is where there is more than one ground connection between two pieces of audio equipment, thus forming a loop. This can act as a single turn coil and stray magnetic fields from nearby equipment and/or power cables can induce a mains frequency current in this loop, which then produces a hum that is heard from the loudspeakers. If this is the cause of hum in a system, using the ground lift switch to break this loop will stop the hum.
- E. **Display brightness button:** Successive presses of this button cause the display brightness to step repeatedly from maximum, 50%, and off. If the display has been switched off, it will come on for a few seconds when another control is used and then switch off again.
- F. **On switch:** Wakes the unit from standby into normal operation and visa-versa. Waking from standby takes about 15 seconds and for part of this time the standby light will be off and the display will be blank. It is also used to store new settings when the output channel volumes or phases are changed.

- G. **Level control:** When the **Channel** button has been pressed, rotating the **Level** control will increase or decrease the volume of the selected output channel and pressing it will toggle the channel's phase.

7. CONNECTING THE DSP-X CROSSOVER

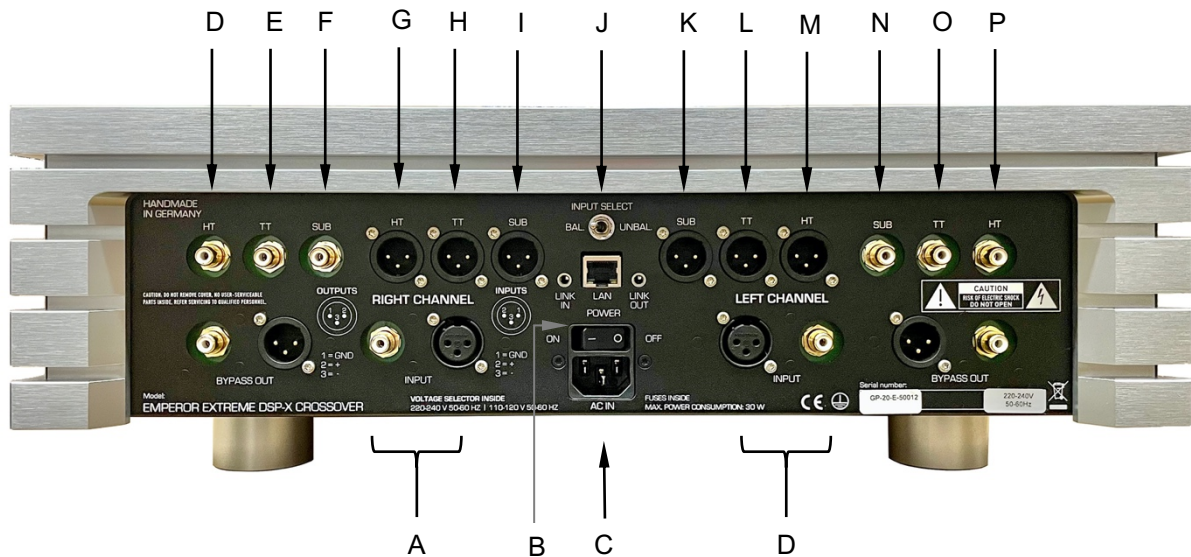


Figure 4. DSP-X crossover rear panel.

1. Make sure all components in the system are disconnected from the mains power.
2. Unpack the DSP-X digital crossover and place it in the position where it will be used.
3. Set the power switch on the DSP-X rear panel to OFF - figure 4, B.
4. Connect a power cable to the power inlet of the DSP-X rear panel, figure 4, C and connect the other end into a power outlet, having first confirmed that this is switched off.



We recommend that all connections be made to the DSP-X using the balanced interfaces, as this will usually produce superior results.

5. Connect the preamplifier right channel output to the DSP-X right channel balanced or unbalanced input as appropriate. Figure 4 A.
6. Connect the preamplifier left channel output to the DSP-X left channel balanced or unbalanced input as appropriate. Figure 4, D.
7. If you are using the DSP-X balanced inputs, set the **INPUT SELECT** switch - figure 4, J - to the BAL position. If you are using the DSP-X unbalanced inputs, set the **INPUT SELECT** switch to the UNBAL position.
8. Connect the input of the power amplifier driving the right loudspeaker DDD driver section to the DSP-X right channel HT output using either the unbalanced output (figure 4, D) or balanced output (figure 4, G).

9. Connect the input of the power amplifier driving the right loudspeaker woofer section to the DSP-X right channel TT output using either the unbalanced output (figure 4, E) or balanced output (figure 4, H).
10. Connect the input of the power amplifier driving the right loudspeaker sub-woofer section to the DSP-X right channel SUB output using either the unbalanced output (figure 4, F) or balanced output (figure 4, I).
11. Connect the input of the power amplifier driving the left loudspeaker DDD driver section to the DSP-X left channel HT output using either the unbalanced output (figure 4, P) or balanced output (figure 4, M).
12. Connect the input of the power amplifier driving the left loudspeaker woofer section to the DSP-X left channel TT output using either the unbalanced output (figure 4, O) or balanced output (figure 4, L).
13. Connect the input of the power amplifier driving the left loudspeaker sub-woofer section to the DSP-X left channel SUB output using either the unbalanced output (figure 4, N) or balanced output (figure 4, K).

8. CONNECTING YOUR LOUDSPEAKERS

Loudspeaker Cables

We recommend that you use loudspeaker cables terminated with high quality spade lugs, as these provide the best electrical connection. The lugs should be either soldered or crimped to the loudspeaker cable – the latter is preferred. We do not recommend the use of bare wire to connect to the loudspeaker terminals. This produces an inferior connection that will further degrade as the bare conductors become tarnished.



The loudspeaker terminals should be tightened as firmly as possible by hand. Do not use pliers or any other tools, as this may damage the terminals.



When connecting the loudspeaker cables between the power amplifiers and the loudspeakers, make sure that the positive terminals on each power amplifier and the loudspeaker input concerned are connected together – these are usually coloured red – and the negative terminals on the power amplifier and loudspeaker input concerned are connected together – these are usually coloured black. Before switching on the power amplifiers, double check to make sure that no mistakes have been made.

Each loudspeaker has an external connection box which is fitted with the input terminals for the DDD driver, woofer and sub-woofer sections of the loudspeaker – figure 5. This box is connected to the loudspeaker via an umbilical cable – figure 6. For the purpose of these instructions, it will be assumed that the loudspeakers have been fully assembled and the connection boxes attached to the loudspeakers via their umbilical cables.

Double check that the plugs on each end of the umbilical cables are fully home and latched in their respective sockets.



Figure 5. Amplifier connection box.



Figure 6. Amplifier connection box and umbilical cable.

1. Connect the loudspeaker terminals of the power amplifier that will drive the right loudspeaker DDD section, to the DDD driver input terminals on the right loudspeaker connection box.
2. Connect the loudspeaker terminals of the power amplifier that will drive the right loudspeaker woofer section, to the woofer input terminals on the right loudspeaker connection box.
3. Connect the loudspeaker terminals of the power amplifier that will drive the right loudspeaker sub-woofer section, to the sub-woofer input terminals on the right loudspeaker connection box.
4. Connect the loudspeaker terminals of the power amplifier that will drive the left loudspeaker DDD section, to the DDD driver input terminals on the left loudspeaker connection box.
5. Connect the loudspeaker terminals of the power amplifier that will drive the left loudspeaker woofer section, to the woofer input terminals on the left loudspeaker connection box.
6. Connect the loudspeaker terminals of the power amplifier that will drive the left loudspeaker sub-woofer section, to the sub-woofer input terminals on the left loudspeaker connection box.

It may be thought unnecessary to give instructions for something as simple as connecting loudspeaker cables, but we have seen enough cases of mistakes being made at this stage to justify this. In a multi-amp system where you have a lot of similar looking loudspeaker cables lying on the floor, the chance of a mistake being made due to a lack of attention are increased and a bit of extra care taken at this point will save time, as well as reduce the risk of possibly damaging something.



Do not switch on the power amplifiers until the DDD shipping covers have been removed as shown in section 10.

9. USING THE DSP-X CROSSOVER WITH THE EMPEROR MK II

Confirming the DSP-X set-up

Before the DSP-X is used in the system it is necessary to confirm that:

- The volume of each output channel has initially been set to 0dB, which is the middle of its adjustment range.
 - The phase of each output channel has initially been set to in-phase.
1. Switch on the power outlet that the DSP-X has been connected to.
 2. Switch on the power switch on the unit's rear panel, figure 4, B. The front panel power indicator light, (figure 3, A), should come on to show that the unit is now in standby mode.
 3. Switch the unit on by pressing the front panel **ON** button, figure 3, F. Allow approximately 20 seconds for the unit to stabilise. The display may remain blank for a few seconds as the unit starts up. The display shown in figure 7 will probably appear.



GERMAN PHYSIKS
EMPEROR DSP X- OVER

Figure 7. DSP-X default display format.

4. If a different German Physiks loudspeaker model name is shown in the bottom line of the display, it does not matter, as this unit is only programmed with the crossover software for the Emperor Mk II and

regardless of the loudspeaker model name shown in the bottom line of the display, only the crossover software for the Emperor Mk II will be operating.

If you wish to have the display appear as shown in figure 7, repeatedly press the front panel **Type** button, figure 3, B. The display will cycle through the model names of all the German Physiks loudspeakers that the DSP-X can be programmed work with, but this will have no other effect on the unit's operation as only the crossover software for the Emperor Mk II will be loaded.

5. Go to the next section to check the channel volume and phase settings.

About output channels volume and phase settings

The volume of each output channel may be adjusted over a range of +/- 4dB and each output channel's phase may be set to either in-phase, or out-of-phase.

The procedure below allows you to review the settings for each output channel and if necessary, make changes.

When using the DSP-X for the first time, we recommend that on all channels the volume is set to 0B and the phase set to in-phase.

Successive presses of the **Channel** button figure - 3, C - will cause the display to show the volume and phase of each output channel. The sequence of the output channel status displays is shown in figure 8, together with the loudspeaker drivers they relate to. Which display appears when the **Channel** button is first pressed may depend on which channel was adjusted the last time any changes were made. In figure 8, on all the channels, the volume is set to 0dB and the phase is set to is in-phase.

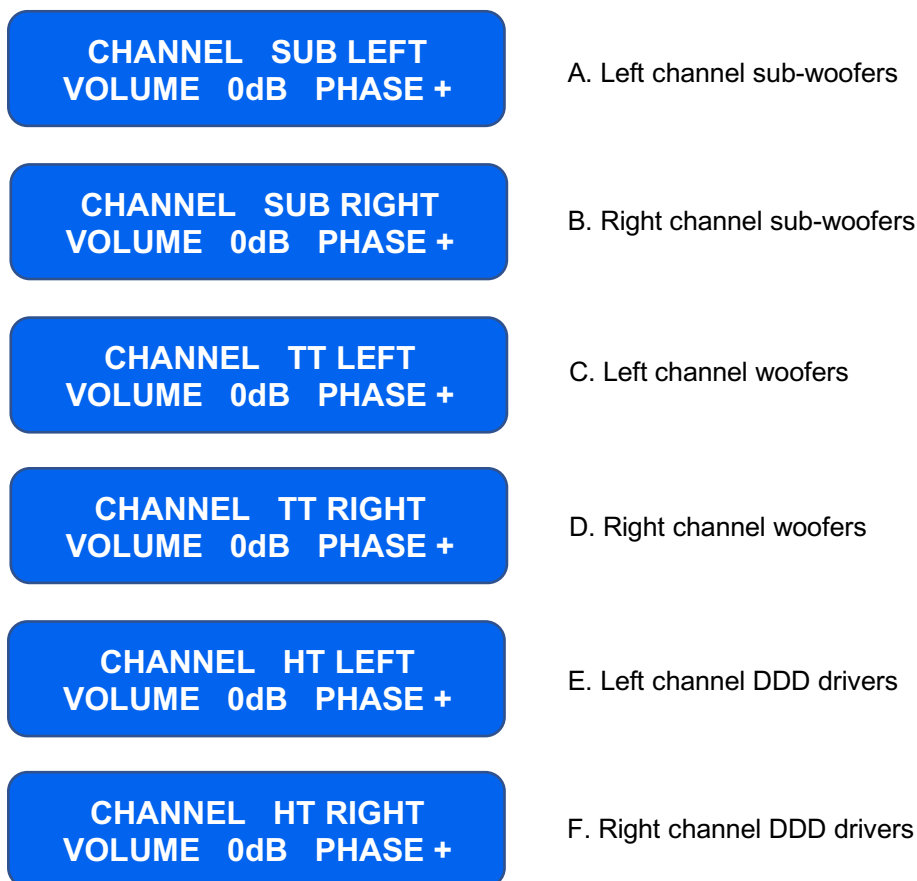


Figure 8. Output channel status displays.

Adjusting the output channels volume and phase settings

Unless you are trying to compensate for a left/right imbalance, we recommend that channel volume settings for each section of the loudspeaker are changed in equal amounts.

Sub-woofer settings

1. Repeatedly press the **Channel** button until the left sub-woofer channel status appears in the display, figure 8, A.
2. Rotate the front panel **Level** control, clockwise or anticlockwise to increase or decrease the channel Volume. When using the DSP-X for the first time set this to 0dB.
3. Pressing the **Level** control will toggle the channel phase setting between in-phase **+** and out-of-phase **-**. When using the DSP-X for the first time set this to in-phase **+**.
4. Repeatedly press the **Channel** button until the right sub-woofer channel status appears in the display, figure 8, B.
5. Repeat steps 2 and 3.
6. To save any changes you have made, press and hold down the front panel **On** button - figure 3,F - for 10 seconds.

Woofer settings

1. Repeatedly press the **Channel** button until the left woofer channel status appears in the display, figure 8, C.
2. Rotate the front panel **Level** control, clockwise or anticlockwise to increase or decrease the channel Volume. When using the DSP-X for the first time set this to 0dB.
3. Pressing the **Level** control will toggle the channel phase setting between in-phase **+** and out-of-phase **-**. When using the DSP-X for the first time set this to in-phase **+**.
4. Repeatedly press the **Channel** button until the right woofer channel status appears in the display, figure 8, D.
5. Repeat steps 2 and 3.
6. To save any changes you have made, press and hold down the front panel **On** button - figure 3,F - for 10 seconds.

DDD driver settings

1. Repeatedly press the **Channel** button until the left DDD driver channel status appears in the display, figure 8, E.
2. Rotate the front panel **Level** control, clockwise or anticlockwise to increase or decrease the channel Volume. When using the DSP-X for the first time set this to 0dB.
3. Pressing the **Level** control will toggle the channel phase setting between in-phase **+** and out-of-phase **-**. When using the DSP-X for the first time set this to in-phase **+**.
4. Repeatedly press the **Channel** button until the right DDD driver channel status appears in the display, figure 8, F.
5. Repeat steps 2 and 3.

6. To save any changes you have made, press and hold down the front panel **On** button - figure 3,F - for 10 seconds.

The DSP-X is now ready for use and assuming that all the other components in the system are connected, the system may now be switched on after the two warnings below have been read.



Do not switch on the power amplifiers until the DDD shipping covers have been removed as shown in section 10.



Switch the power amplifiers on last. To avoid any nasty surprises, set the preamplifier volume to minimum before switching it on, or attempting to play any music.

10. REMOVING THE DDD DRIVER SHIPPING COVERS



Do not touch the DDD driver diaphragms or attempt to clean them.

The DDD drivers may be covered with a layer cardboard to protect them whilst in transit. This should now be removed.

To remove the cardboard protector, slit the adhesive tape securing it by sliding a **short-bladed** knife between the two layers of cardboard whilst holding the knife as shown in figure 9. Do not cut in the way shown in figure 10, as there is a danger that you will cut the DDD driver diaphragm.



Figure 9. The correct way to remove the DDD driver cover.



Figure 10. The wrong way to remove the DDD driver cover.

11. WARRANTY

Guarantee – European customers only

Under EU law, the person who sells a new product to a customer, whether it is a dealer or manufacturer, is legally obliged to offer a 2-year guarantee. This is what is described as the Gewährleistung in Germany. During this period the customer must make any claim to the original seller.

Outside of this period, the German Physiks warranty described below applies.

Warranty – All other countries

German Physiks warrants this product to be free from defects in materials and/or manufacture if used under normal domestic conditions for a period of 5 years from the date of original purchase. To simplify any future warranty claim, we advise the buyer to register their purchase with German Physiks within 30 days of the purchase. This may be done by completing the registration form at the end of the user manual and returning it to German Physiks together with a copy of the sales receipt, or by using the product registration form on the German Physiks web site. This may be found under the menu items *Contact/Product Registration*. Alternatively, scanning the QR code below with your mobile phone camera should take you to the product registration page on the German Physiks web site.



Figure 11. QR code for the product registration page on the German Physiks web site.

If this product is re-sold in the original country of sale, the remaining part of the warranty may be transferred to the new owner.

The new owner should register their purchase by completing the registration form at the end of the user manual and returning it to German Physiks with a copy of the sales receipt.

If the registration form is missing, a new form may be obtained by downloading new copy of the user manual from the German Physiks web site. This may be found under the menu items *Media/Product Resources*.

The new owner can also register their purchase by using the product registration form on the German Physiks web site.

Please keep the original sales receipt, as it may be required in the event of warranty support being requested. Second and subsequent owners should request this from the seller.

Modifications or repairs performed by the factory, or by an authorised repair agent, shall be guaranteed for the remaining period of the warranty, or for 1 year, whichever is greater.

German Physiks offers no other express warranty on their products. This warranty shall not extend beyond the stated warranty period. No responsibility is assumed for incidental or consequential damage. This warranty complements any obligations on national distributors or dealers imposed by national or regional law and does not affect your legal rights as a consumer.

Exclusions to the warranty

This warranty is only valid in the original country of sale.

This warranty is only valid for products initially purchased from an authorised German Physiks re-seller, or distributor.

This warranty does not cover damage caused by normal wear and tear.

This warranty will be invalidated if the serial number has been removed, defaced or altered.

This warranty will be invalidated if the product has been used otherwise than in accordance with the user manual.

This warranty will be invalidated if the product has been subject to an unauthorised modification, or repaired by someone other than a factory authorised repair technician, or company.

The warranty will be invalidated if German Physiks determines that the product has been subject to misuse including, but not limited to, exposure to excessive heat or humidity; liquid spills; use of inappropriate cleaning methods and in the case of loudspeakers, burnt out voice coils and dents or scratches on driver diaphragms.

This warranty does not cover any fault that is not due to defects in materials and/or manufacture.

This warranty will not cover any damage incurred as a result of failing to use factory approved shipping cartons/crates, and methods.

12. SERVICE AND SUPPORT

In all cases the customer should contact the seller and provide them with the following information:

- Model name or number
- Serial number
- Date of purchase
- Description of the problem

They will then contact German Physiks via the local distributor. We will liaise with them to diagnose the fault and decide the best way to affect a repair.

If the dealer/seller or local distributor is unable to assist you, please contact German Physiks using the contact form which may be found under the *Contact* menu item on our web site at www.german-physiks.com. If you scan the QR code below with the camera on your mobile phone, it should open the contact form on the German Physiks web site



Figure 12. QR code for the contact form on the German Physiks web site.

You can also contact us by email at service@german-physiks.com, by phone on + 49 6109 502 9823, or by fax on + 49 6109 502 9826. In each case you will need to provide the information listed above.

Should you need to phone us, please take into account time differences between Germany and where you are calling from. We can only take calls in German and English. Email is our preferred method of initial contact.

We may request a copy of the original sales receipt to determine if the product(s) is within their warranty period.

In the vast majority of cases, the repair will be dealt with by sending spare parts from the factory to the local distributor who will carry out the repair, or at their discretion authorise the dealer to do so on their behalf. Any costs involved in shipping the products(s) to and from the dealer, or distributor are the responsibility of the customer and the customer does so at their own liability.

Shipping products

The products(s) must be shipped packed in their original packing, or packing that has been approved by German Physiks.

Cartons must be securely strapped to a Euro pallet, or other suitable size pallet and then shrink wrapped. Consult German Physiks for advice.

Loudspeaker spikes, if fitted, must be removed and any transit screws securely fitted in their place. Do not over tighten them.

All jumper cables, remote controls and other accessories must be returned so that these can be tested if necessary.

If the spikes or any other accessories are being returned with loudspeakers, place them in the original packing, or a strong plastic bag, seal this with self-adhesive tape and then place it on top of one of the top packing pieces and secure it firmly with tape, so that it cannot move and damage the loudspeaker whilst in transit. Do not attach this to any part of the loudspeaker. Do not leave any loose items in the shipping cartons that might damage the drivers or cabinet. Any such damage will not be covered by the warranty.

Failure to follow these instructions may result in damage that will not be covered by the warranty.

Returning goods to the factory

In the event that it becomes necessary to return a product(s), or any part of them to the factory in Germany, we will issue a Return Authorization (RA) number. This number must be clearly marked on the outside of the packing. Returns made without a RA number will not be accepted. Any returned items must be shipped in the original packing, or packing approved by German Physiks. German Physiks will not be responsible for any damage that occurs as a result of the use of non-approved packing. Returns received in non-approved packing will have this replaced with new packing at the owner's expense. If you need new packing, please contact your German Physiks dealer, local distributor or the factory.

The customer is responsible for all costs involved in shipping the product(s) to and from German Physiks. German Physiks accepts no liability for any loss or damage to the product that may occur during shipping.

A shipping company approved by German Physiks must be used.

German Physiks reserves the right to make a charge for items returned to the factory under warranty if:

- The fault was due to mis-use
- No fault is found
- Approved packing was not used

Any components replaced by German Physiks at their factory become the property of German Physiks.

13. HOW TO CONTACT US

If you wish to get in touch with us, please use the contact information shown below. Please note that our office hours are from 9.30 a.m. to 5.00 p.m. Monday to Thursday, excluding public holidays and that we cannot respond to enquiries outside of these hours. We recommend that where ever possible you contact us by email, as this will allow us to give your enquiry more consideration and thus provide a more detailed reply.

Address	DDD-Manufactur GmbH Gutenbergstraße 4 D-63477 Maintal GERMANY
Telephone	+ 49 61 09 50 29 823
Fax	+ 49 61 09 50 29 826
Email	service@german-physiks.com
Web	www.german-physiks.com

14. DSP-X SPECIFICATIONS

Controls	Channel level adjustment
	Type
	Channel
	Ground lift
	Display on/off
Inputs	RCA x 1 pair
	XLR x 1 pair
Output channels	3 stereo pairs plus outputs for 2 sub-woofers
	RCA and XLR connectors are provided for each output
Other information	Ethernet output provided for connection to computer for remote control app
Dimensions	474 mm W x 160 mm H x 474 mm D 18.7" W x 6.3" H x 18.7" D
Weight	Approximately 36kg Approximately 77lbs
Warranty	5 years
As part of our process of continually improving our products, we reserve the right to change specifications without notice	

15. WARRANTY REGISTRATION

In order to register your purchase and obtain the full 5-year warranty, please complete the forms below within 7 days of purchase and return it by post together with a copy of the receipt of purchase to:

DDD-Manufactur GmbH
 Gutenbergstraße 4
 D-63477 Maintal
 GERMANY

You can also register the DSP-X using the product registration form on the German Physiks web site at www.german-physiks.com. You will find the form under the *Contact/Product Registration* menu.

If registering on-line, please email a scan or photo of the receipt of purchase to sales@german-physiks.com.

Name	
Address	
Country	
Zip/Post code	
Model	DSP-X digital crossover
Serial number <small>On back panel</small>	
Finish	
Date of purchase	
Where purchased	
Address	
Country	
Zip/Post code	