

Borderland Mk IV User Manual



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

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1. INTRODUCTION

Thank you for selecting the German Physiks Borderland Mk IV loudspeakers for your audio system. The Borderland Mk IV is a 2 way design using a single DDD driver and a high performance woofer coupled to a Helmholtz resonator. It is entirely handmade and is built and tested by highly skilled technicians at our factory in Maintal in Germany.

Every step in the design and manufacture of this product has been dedicated to producing a loudspeaker that will provide a lifetime of musical enjoyment.

We strongly recommend that you read this manual before attempting to use the loudspeakers as this will enable you obtain the best performance from them.

2. UNPACKING YOUR LOUDSPEAKERS

NOTE: When lifting the loudspeakers out of the packing hold them around the cabinet.

Do not lift them by the DDD driver support pillars (figure 4) as this may damage the driver.

Do not lift them by the cabinet supports (figure 4) as this may damage the cabinet.

Each Borderland Mk IV weighs 55kg (121lbs) and should not be lifted by one person alone. Always have help when lifting a loudspeaker.

The Borderland Mk IV is supplied with each loudspeaker packed in a separate shipping carton. This must be kept upright as shown in figure 1. Before opening the carton, please inspect it for damage. If you see any damage, please contact the supplying audio dealer immediately and provide them with a full description of the damage. Do not attempt to unpack the loudspeakers until you have spoken with the dealer and have been advised how to proceed.

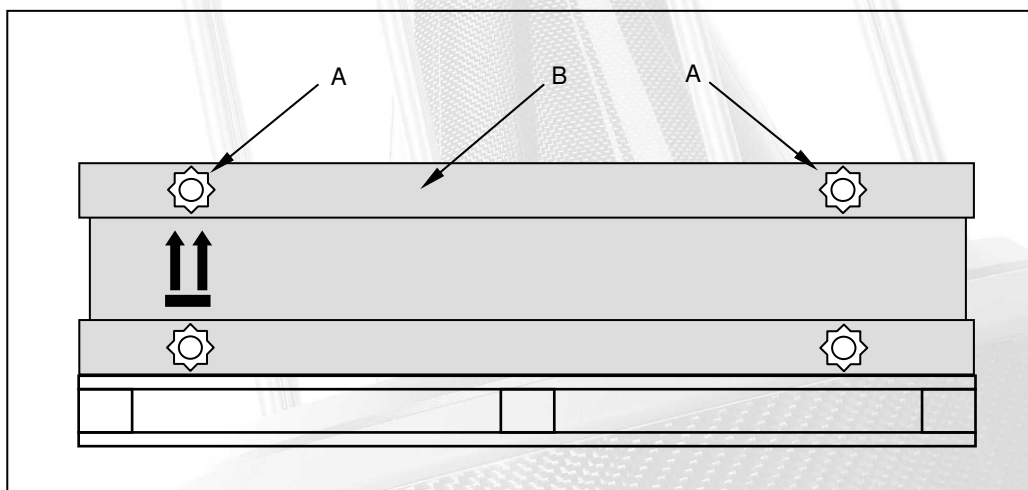


Figure 1. Borderland Mk IV Shipping Carton

To unpack the loudspeakers please follow the instructions below:

1. Referring to figure 1, unscrew and remove the four securing screws A from the top cover of the carton B and then lift off the top cover. Do not remove the four screws from the carton lower tray.
2. Remove the three foam packing pieces C in figure 2.

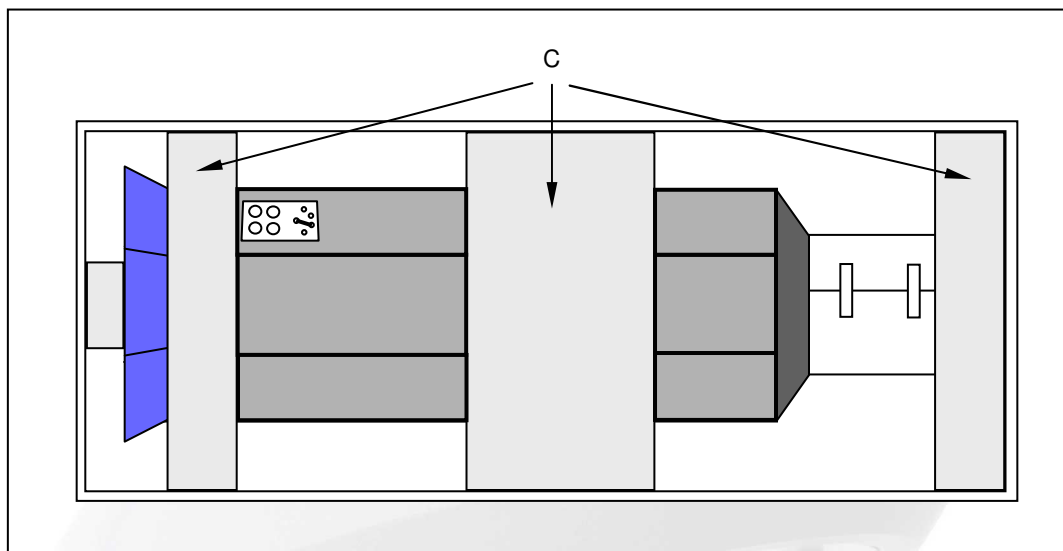


Figure 2. Borderland Mk IV Shipping Carton

3. Lift the loudspeaker out of the shipping carton by holding it around the cabinet. Do not lift it by the DDD driver support pillars or cabinet supports – figure 4.
4. Remove the clear film from around the loudspeaker taking care not to scratch the finish.
5. Remove the foam protective rings from the top and bottom of the loudspeaker.
6. Do not remove the cardboard covering the DDD driver at this stage. This should be left on for the time being to provide protection while the loudspeaker is being handled.

Please confirm that the cartons contain the following items:

Item	Quantity	Description
1	2	Borderland Mk IV Loudspeakers
2	1	Borderland Mk IV User Manual
3	2	Cleaning Cloths

If any items are missing or shows signs of damage, please contact the supplying dealer immediately.

Please retain all of the packing as you will need this should it be necessary in the future to ship the loudspeakers. The use of any other packing may result in the loudspeakers sustaining damage in transit. Such damage is not covered by the warranty. Should you require replacement packing, please contact your German Physiks dealer, the national distributor or the factory directly.

Storing the Shipping Carton

Referring to figure 3, the centre section of the shipping carton, B, may be removed and folded flat for more convenient storage by removing the four lower tray securing screws A.

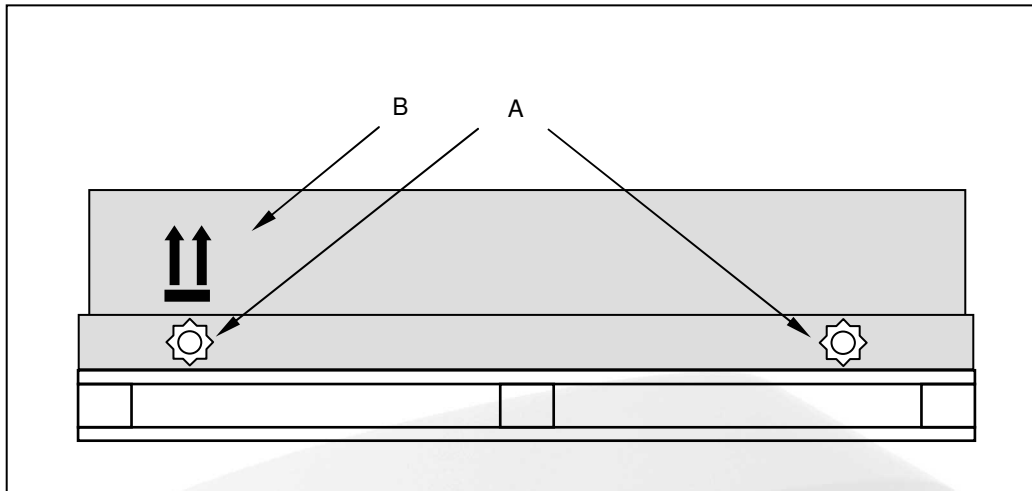


Figure 3. Collapsing the Borderland Mk IV Shipping Carton

3. PRINCIPLE FEATURES OF THE BORDERLAND Mk IV

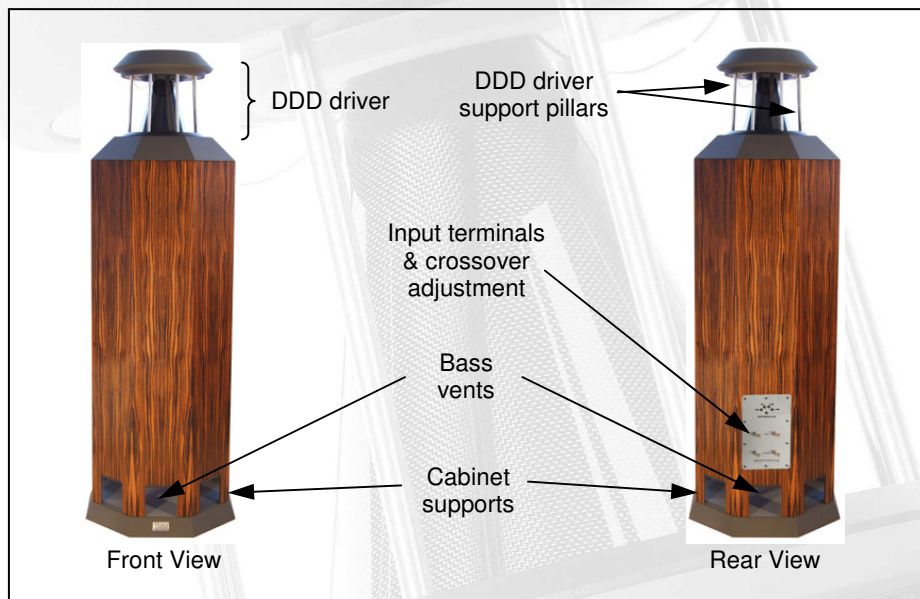


Figure 4. Principle Features of the Borderland Mk IV

4. LOUDSPEAKER PLACEMENT AND SET-UP

NOTE: DO NOT place the loudspeakers close to cathode ray type monitors or projectors, as the very powerful magnets used in the drivers may affect the picture. We recommend a minimum separation of 2m.

Adjusting the Spikes

NOTE: We strongly recommend having an assistant help to hold the loudspeakers while the spikes are being adjusted.

The base of the Borderland Mk IV is fitted with four spikes. These are double ended as shown in figure 5 and are locked in position with a nut. You will need an open ended 10mm spanner to adjust them - figure 6.

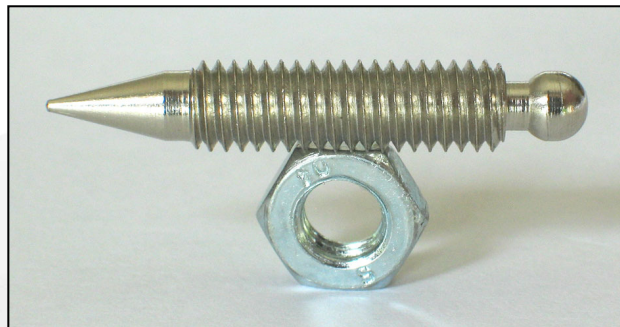


Figure 5. Double Ended Spike and Nut

The round ends of the spikes should be used when the loudspeakers are to be placed on a hard floor such as tile or wood and the pointed ends should be used when the loudspeakers are to be placed on a carpeted floor. The loudspeakers are shipped with the round end of the spikes facing out.

When placing the loudspeakers on a carpeted floor, ensure that the spikes are set to protrude sufficiently from the base to pass through the carpet and make firm contact with the underlying floor.

The easiest way to adjust the spikes is to lay the loudspeaker on its side. To protect the finish, we suggest that you use a clean soft blanket to lay the speaker on. Set the two spikes at the back and the left hand front spike to protrude approximately the same amount - within 1 or 2mm – and then tighten the locking nut. Do not use excessive force when locking the nut as this may damage the loudspeaker base plate. Set the right hand front spike to protrude the same amount, but do not tighten the locking nut.

Stand the speaker up and place it in its initial position. Please refer to figure 7 for guidance on positioning. The face of the cabinet with the input terminals on should be facing directly backwards

If the loudspeaker is placed on a carpet, push downwards on the cabinet at the base of the DDD driver and ensure that the spikes are in firm contact with the underlying floor. Do not push on the top of the DDD driver.

To check that the loudspeaker is sitting squarely on the spikes:

1. **If the loudspeaker can be rocked in the 10 o'clock to 4 o'clock direction**, lean the loudspeaker to the left and screw **out** the right hand front spike by the amount of movement you saw at the base of the cabinet. It is best to have an assistant to help hold the loudspeaker. Stand the loudspeaker back up and repeat the process until it is

sitting squarely on its spikes. Lean the loudspeaker to the left again and lock the nut on the right front spike (figure 6), taking care not to change the spike's setting. Do not use excessive force when locking the nut as this may damage the loudspeaker base plate.

2. **If the loudspeaker can be rocked in the 2 o'clock to 8 o'clock direction**, lean the loudspeaker to the left and screw **in** the right hand front spike by the amount of movement you saw at the base of the cabinet. It is best to have an assistant to help hold the loudspeaker. Stand the loudspeaker back up and repeat the process until it is sitting squarely on its spikes. Lean the loudspeaker to the left again and lock the nut on the right front spike (figure 6), taking care not to change the spike's setting. Do not use excessive force when locking the nut as this may damage the loudspeaker base plate.

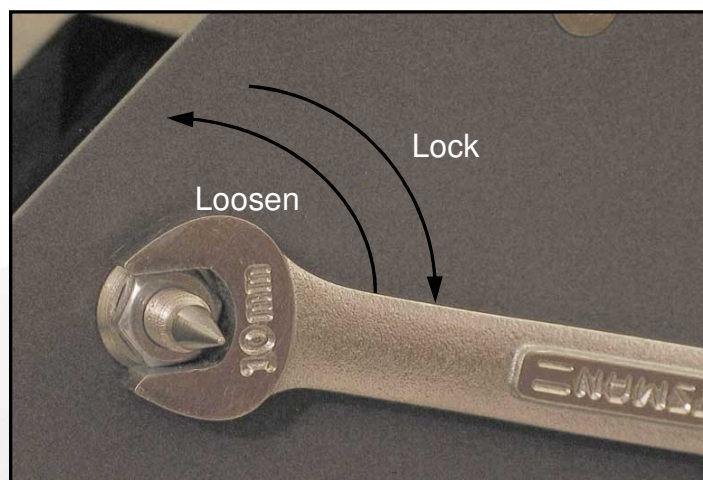


Figure 6. Adjusting a Spike Nut

Listening Room Layout

The following points will help you optimise your listening room layout.

1. The left and right sides of the room should be symmetrical. If the room is asymmetrical, this will degrade the quality of the stereo image. This is because most of the sound energy that you hear is reflected before it reaches your ears.
2. Place the loudspeakers symmetrically in the room, i.e. the same distance from the centre line of the room and the same distance from the front wall.
3. Avoid placing the loudspeakers similar distances from the side and front walls, as this may lead to an uneven bass response
4. Avoid having any hard surfaces between your listening position and the loudspeakers. This will generate additional reflections that may degrade the stereo image. For this reason, where ever possible equipment should be located at the side of the room. If you have a hard floor (tile or wood), it may be advantageous to place a carpet on the floor covering the area between the loudspeakers and the listening position, as this will reduce unwanted early reflections.
5. Avoid having the listening position closer than 1.2m from the rear wall as early reflections from this wall will degrade the stereo image.

Loudspeaker Placement

Distance from Front Wall

We recommend that you start with the speaker positioned 1.5m from the front wall. As you move the loudspeaker closer to the wall the level of the bass response will be increased. The converse will be true as you move the loudspeaker away from the front wall. The Borderland Mk IV should not be placed closer than 1m from the front wall. If the loudspeaker is too close to the front wall, not only will the bass response be excessive, but the stereo image will be degraded due to an increase in early reflections. Aim to find a position that provides an even bass response so that all the bass notes in the music are reproduced at an equal level, combined with well a focussed stereo image when you are seated at the listening position. Be sure to choose a recording that has an even bass response.

Distance from Side Wall

We recommend that the distance between the centres of the loudspeakers be $\frac{2}{3}$ of the distance of the loudspeakers from the listening point. Moving the speakers further apart will degrade the stereo image.

We do not recommend placing the loudspeakers closer than 1m from the side walls, as the early reflections will degrade the stereo image.

Positioning the loudspeakers too close to the side walls will also lead to an uneven bass response. Aim to find the position that provides the best defined and most realistic stereo image when you are seated at the listening position.

Figure 7 gives a general guide to loudspeaker positioning and the location of the listening position. Note how the recommended listening position varies with the separation between the loudspeakers. Because the Borderland Mk IV is an omni directional loudspeaker, there is no need to adjust the toe-in angle. The loudspeakers should always be set with the front of the speakers facing down the room.

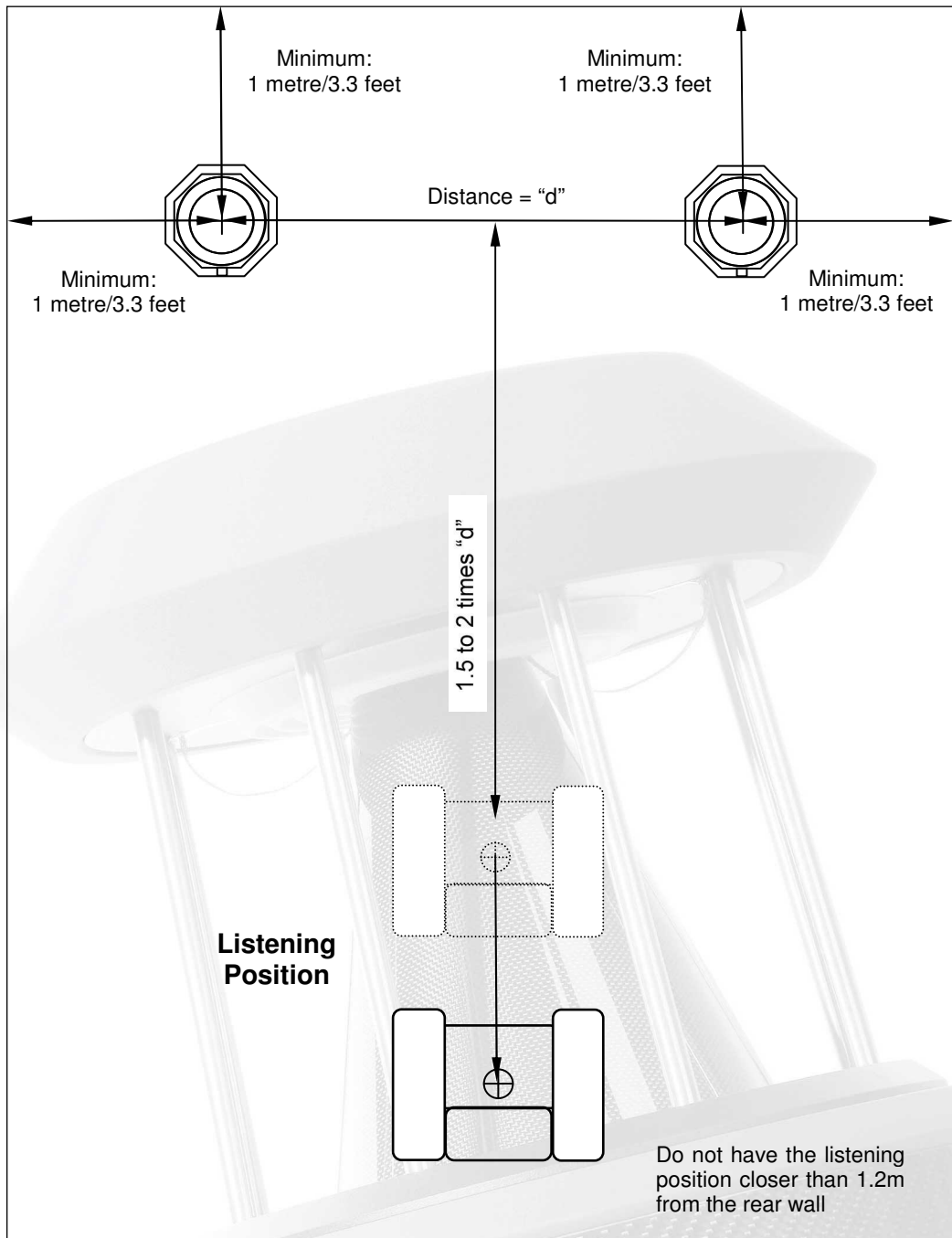


Figure 7. Listening Room Arrangement

5. CONNECTING YOUR LOUDSPEAKERS

NOTE: An amplifier capable of delivering at least 160W rms into 4 ohms should be used for each loudspeaker

The Borderland Mk IV is a 2 way design with separate input terminals for the low frequency and high frequency sections of the crossover. These drive the woofer and DDD drivers respectively and are labeled as such. The loudspeaker also has a high frequency level control.

The input terminals and high frequency level control are located on a panel fitted on the back of the cabinet. Figure 8 identifies the features on this panel.

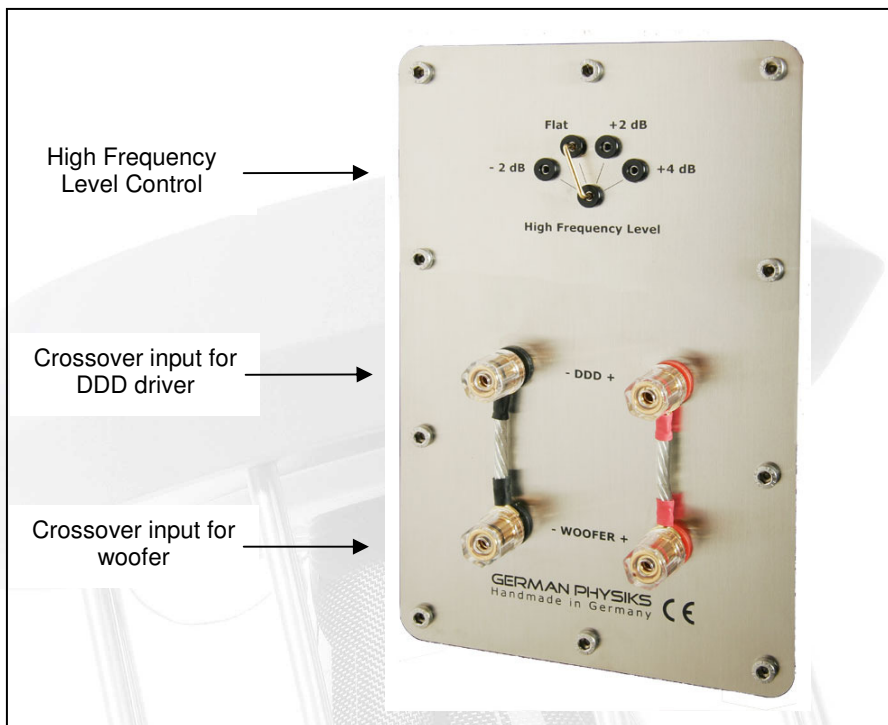


Figure 8. Input Terminals and High Frequency Level Control

High Frequency Level Control

This adjusts the output from the DDD driver and is centred at 8,000Hz. 4 settings are provided: -2dB, flat, +2dB and +4dB. To adjust the control, pull the jumper out and then push it back into the appropriate pair of sockets. For the initial setting of the loudspeaker this should be set to the flat position. The final setting should be made once the loudspeaker has been broken in and the final position in the listening room established. We suggest that you experiment with different settings to determine which gives the most satisfactory frequency balance.

Input Terminal Connections

NOTE: 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.

There are two recommended methods of connecting the Borderland Mk IV to the amplifier.

Single Wire Connection

This uses one cable to connect each loudspeaker to the power amplifier. The two red terminals and the two black terminals on the crossover panel should be linked together as shown in figure 8. The loudspeakers will be shipped with high quality links in this position.

Connect the loudspeaker cable to the woofer input terminals taking care to ensure that the woofer positive terminal is connected to the power amplifier positive output terminal and the woofer negative terminal is connected to the power amplifier negative output terminal.

Bi-Wire Connection

In this method of connection the DDD driver and woofer inputs are connected to the power amplifier with separate loudspeaker cables. Ensure that the links between the two red terminals and the two black terminals on the crossover panel have been removed.

Connect one loudspeaker cable to the DDD driver input terminals taking care to ensure that the positive terminal is connected to the power amplifier positive output terminal and the negative terminal is connected to the power amplifier negative output terminal.

Connect the other loudspeaker cable to the woofer input terminals taking care to ensure that the woofer positive terminal is connected to the power amplifier positive output terminal and the woofer negative terminal is connected to the power amplifier negative output terminal.

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.

NOTE: Do not switch on the power amplifier until the DDD shipping covers have been removed as shown in section 6.

6. REMOVING THE DDD SHIPPING COVERS

If your Borderland Mk IVs are fitted with titanium DDD drivers these will be covered with either a layer of clear film or cardboard to protect them whilst in transit. This should now be removed. The film should be peeled off by hand. Do **not** use a knife.

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

7. LOUDSPEAKER BREAK IN

Like all audiophile equipment, German Physiks loudspeakers require a break in period from new before they reach their optimum level of performance. Initially the sound may seem harsh. Please do not be concerned. The sound will become more relaxed and smooth as the break in progresses. The music used for the break in should be dynamic in order to properly exercise all the components of the loudspeaker.

For the first 10 hours play the loudspeaker at low level only. This is a level where you would easily be able to carry out a conversation without needing to raise your voice.

After this, the speaker may be played at normal listening levels. The break in process will be complete after 200 to 300 hours.

8. CARE OF YOUR LOUDSPEAKERS

NOTE: NEVER attempt to open the cabinets. There are no user serviceable parts inside the loudspeakers.

NEVER touch the diaphragm on the DDD driver, or allow any object to come into contact with the diaphragm.

NEVER attempt to clean the dust off the diaphragm. Dust has no affect on its performance and may be safely ignored.

NEVER attempt to clean the speakers with any abrasive materials or any cleaners containing ammonia, alcohol or other solvents, as these may damage the finish.

The only maintenance the speakers will require is periodic dusting to remove dust and any finger prints from the cabinets. Please use the cleaning cloths supplied with the loudspeakers. These cloths should be used dry. Do not use any form of liquid with them. Additional cloths may be obtained via local your German Physiks dealer, national distributor or direct from German Physiks.

9. WARRANTY

German Physiks loudspeakers are warranted to be free from defects if used under normal conditions for a period of 5 years from the date of purchase, provided that the customer registers their purchase by completing and returning the registration form at the end of this manual within 7 days of purchase. A copy of the receipt issued at the time of purchase must also be returned. If this is not done the warranty period will be 5 years from the date of shipment from the factory. This warranty is transferable to subsequent owners, who must register their purchase with us.

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, which ever is greater.

Any unauthorised modifications or repairs will invalidate the warranty. The warranty will also be invalidated if German Physiks determines that the unit has been subject to misuse including, but not limited to, burnt out voice coils and dents or scratches on driver diaphragms or cabinets.

There is no other express warranty on German Physiks products. This warranty shall not extend beyond the stated warranty period. No responsibility is assumed for incidental or consequential damage.

10. SERVICE AND SUPPORT

In the first instance please contact your local German Physiks dealer or distributor. They will diagnose the fault and liaise with German Physiks to decide the best way to affect a repair. If they are unable to assist you, please contact German Physiks by phone on + 49 61 09 50 29 823, by fax on + 49 61 09 50 29 826, or by email at service@german-physiks.com. You may also contact us via our web site at www.german-physiks.com. Please take into account time difference between Germany and where you are calling from should you need to phone us. Email is our preferred method of initial contact. Please supply the model name and serial numbers of your loudspeakers and as much detail of your problem as possible. The serial number is printed on a label attached to the underside of the loudspeaker's base plate.

In the vast majority of cases, the repair will be dealt with by sending spare parts from the factory. In the unlikely even that it becomes necessary to return the loudspeakers or any part of them to the factory, you will be given 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. German Physiks will not be responsible for any damage that occurs as a result of the use of non-standard packing. Returns received in non-standard packing will be replaced with new packing at the owner's expense. If you need new packing, please contact your German Physiks dealer or the factory.

For items returned to the factory under warranty during the first year, German Physiks will pay for the shipping charges both ways. A shipping company approved by German Physiks must be used and the items will be returned to the customer using the same carrier, or an equivalent service.

For loudspeakers returned to the factory under warranty after the first year, the customer is responsible for paying all shipping and related charges back to the factory. A shipping company approved by German Physiks must be used. Providing this condition is met, German Physiks will pay the cost of shipping the loudspeakers back to the customer.

German Physiks will not pay any shipping costs if:

- a. Loudspeakers or parts are returned without a RA number
- b. No fault is found
- c. If the fault is judged to be due to misuse such as, but not limited to, burnt out voice coils and dents or scratches on driver diaphragms or cabinets.

Customers are responsible for all freight, duties, insurance and related shipping charges for loudspeakers returned for non-warranty repairs.

11. 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



12. BORDERLAND Mk IV SPECIFICATIONS

Version	With DDD Titanium Driver	With Carbon DDD Driver
Impedance	3.5 ohms at 375Hz	3.7 ohms at 375 Hz
Frequency Response	28 - 21,500Hz	28 - 24,000Hz
Power Handling		
Nominal	300W	
Short term	600W	
Amplification required	Minimum 160W/4 ohms	
Cross over frequency	200Hz	190Hz
Cross over slopes		
DDD section	12dB/octave electronic & 18dB/octave acoustic	
Woofer section	18dB/octave electronic & 18dB/octave acoustic	12dB/octave electronic & 18dB/octave acoustic
High frequency adjustment	-2dB, flat, +2dB and 4dB centred at 8,000Hz	
Sensitivity	86.0dB for 1W at 1m	86.1dB for 1W at 1m
Operating principle	2 way speaker with 360° surround radiation using the DDD Bending Wave Converter	
Input connectors	2 sets of binding posts	
Drivers	1 x Titanium DDD driver 1 x 12 inch woofer	1 x Carbon DDD driver 1 x 12 inch woofer
Dimensions	404mm W x 1,229mm H x 404mm D 15.9" W x 48.4" H x 15.9" D	
Weight	55kg 121lbs	54kg 119lbs
Warranty	5 years	
As part of our process of continually improving our products, we reserve the right to change specifications without notice		

13. WARRANTY REGISTRATION

In order to register your purchase and obtain the full 5 year warranty, Please complete the form 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

Name	
Address	
Country	
Zip/Post Code	
Speaker Model	Borderland Mk IV
DDD Type <small>Delete as necessary</small>	Titanium / Carbon.
Serial Number <small>See label under speaker</small>	
Finish	
Date of Purchase	
Where Purchased	
Address	
Country	
Zip/Post Code	