

Manual

A N S

ABSOLUTE NATURAL SOUND

DI-Box active

Active Pick-up System for Contrabass



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Translation of the original Document

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1. Performance Features

DI-Box active is a pre-amplifier for the pick-up system ANS active with an input for active PU. It also contains a preamp specifically designed for this pick-up and a second input that can be used for bass guitars and other instruments.

Both inputs include an internal gain control – the outputs (balanced – unbalanced) include an internal control. Therefore, the signals to the amplifier and the mixing console can be adjusted separately.

The version **SLAP** has an input with an adjustable LOW CUT and therefore allows connecting a fingerboard.

In order to install the amplifier, you will also need

1 XLR-cable

2 Batterys (9V)

Typical Applications

- Operation for balanced Inputs with phantom power, precursors and intrumtent al amplifiers
- Output level adjustable internal -20 dB to ca. +6 dB
- additional adjustable internal Input (Plug) on the Box (E-Bass, 2. PU for Rockabilly neck-pickups)
- Mute-Switch, selectable PU.Input or the two Inputs

This manual describes the technology and application and explains the system using examples.

2. General Description

2.1. Phantom Power

Microphones and other signal sources often require a separate power supply from a battery, rechargeable battery or power supply. Today, this effort is avoided by supplying connected signal sources with power via the signal cable (microphone cable etc.). Therefore, a supply voltage is coupled to the signal wires of the connection cable in the input of the mixing console. There is always a DC voltage which does not disrupt the transmission of the audio signal as audio signals are always AC voltage.

The standard phantom power voltage is 48V and can deviate below this value. This value is irrelevant for the DI-Box active-system as it runs accurately under voltages between 7V and 48V.

2.2. Balanced and Unbalanced Signalling

This term requires no definition as it is used rather frequently throughout the description. There are two types of signalling, namely balanced and unbalanced transmission.

Unbalanced Transmission

The benefit of this transmission type is the simpler input and output switching technology of the individual devices. The disadvantage is its sensitivity to humming noises and other interferences, which increases with each metre of cable length. This type is mostly used for short transmission routes such as guitar, bass guitar or keyboard cables etc. The most frequently used ports for this are 6,3mm jack ports.

What is most notable about the unbalanced transmission is the composition of the cables used. They have a signal wire and a shield, which is simultaneously used as signal ground.

Older systems use the jack cables as speaker cables, but this is not part of the currently described application.

Balanced Transmission

Balanced transmission is preferred for the application of very weak signal sources such as dynamic microphones etc. It is also recommended to be used for longer cable lengths.

Its major benefit is its insensitivity to disruptions such as humming noises and interfering signals i.e. line and environment related disruptions. Balanced transmission is less critical with respect to line length.

Its disadvantage is the sophisticated switching technology for in- and output of the separate devices. It used to be applied almost exclusively to sound studio and large stage technology. Due to the drop in prices of electronic bulk sales, it increasingly captured the market and is now commonly used in low-priced devices. The same applies to phantom power being state of the art of current mixing consoles.

Mostly, the used plug connections are 3-pole XLR-connectors. The composition of cables includes two signal wires and a mutual shield also being used as signal ground. The term for this cable type is: Microphone cable.

XLR-connectors are also used for other purposes. However, this is not part of the currently described application.

2.3. DI-Box active

DI-Box active is a preamplifier with an input particularly developed for the box amongst many other features. DI-Box active requires power supply with phantom power from the mixing console, the preamplifier or 1-2 batteries (9V).

3. Technical Description

The term **DI** (Direct Input) derives from sound technology. It is a device switched between instrument and amplifier to deduce a separate signal for a mixing console. There are many price categories for a DI Box. Its disadvantage is that there is a sound loss of the instrument by interposing a DI Box.

In order to avoid this, the DI-Box active was designed - amongst other particularly adapted features - for the contrabass.



The function of the **ANS-DI** and in- /output switches are visible on the label

3.1. Definition of terms

Active Pickup IN– Combination Input

This input is unbalanced and comes with stereo jack and XLR-port. It is made particularly for the DI-Box active. When delivered, it is switched on phantom power (PIN 3 for the XLR and RING for the jack) which can be deactivated if necessary (see chapter “Putting JP5 into use”).

Instr. IN– Jack Input

This input is unbalanced and can be used for bass guitars, guitars or similar instruments. When delivered, it is NOT switched on phantom power, but it can be activated if necessary (see chapter “Putting JP4 into use”). Its input sensitivity is 470 kΩ and can internally be adjusted to respective needs (see chapter “Putting P2 into use”). This input can be adjusted to other levels by means of minor amendments.

Amp. OUT– Jack Output

This output is unbalanced and provides a combination of both the signals of active Pickup IN and instr. in. The volume balance can be adjusted using 2 potentiometers inside the DI-Box (see chapter “Putting P1, P2 into use”). The signal to Amp. OUT is intended for connecting it to an instrument amplifier (Line Level) (-10db). This can be corrected by means of adjustments inside the DI-Box if necessary (see chapter “Putting P3 into use”). It is possible to adjust this input to other levels through minor amendments.

DI Out - XLR-Output

This output is balanced and provides the same combination of both the signals of **active Pickup IN** and **instr. in**, as does the jack output **amp. out**. The signal to **DI Out** is intended for connecting it to a mixing console and can be at quite a high level with 0dB. This can be adjusted and corrected inside the DI-Box if necessary (see chapter “Putting P1, P2 into use”).

bat. sw – Battery Switch

In order to save batteries, they can be switched off completely. There is a pressure switch between LED's and the jack input **instr. in**. If the pressure switch is being pressed, the batteries are switched on. The **red LED** will light up under sufficient battery voltage. If the switch sticks out, the batteries are switched on, but the **red LED** will not light up.

If the **blue LED** lights up, the DI-Box active is fully functional without batteries.

MUTE - MUTE -Switch

The MUTE-switch is on the top of the Box. It is designed as foot switch and extremely robust.

If the **MUTE**-function (inputs switched to mute) is activated, the **green LED** will light up. Depending on the configuration of the DI-Box active the XLR-input **Pickup-In** will be switched to mute either separately or simultaneously with the jack input **Sym-IN**. Muting will affect both outputs **Sym.-Out** and **Asym-OUT**.

Light-emitting Diodes LED's, blue red green

DI-Box active contains 3 colour light-emitting diodes signalling different operating states

Blue

The LED lights up when a mixing console or an amplifier with switched on phantom power is connected to the output **DI Out**. In this case, operating is possible and reasonable without batteries. Therefore, the battery switch **bat. sw** is switched off (button off).

Red

The LED lights up when there are one or two batteries inside the device and the battery switch **bat. sw** is switched on (button pressed). If the batteries are charged, the blue LED might flicker, but this is of no significance.

Green

The LED lights up when the **MUTE**-switch is being pressed. The **XLR**- input and - depending on the configuration – the jack **Instr. IN** switched to mute. There is no signal on the - **DI OUT** - and - **Amp-OUT** -.

If the LED does not light up, both inputs are open.

4. Putting into Use

DI-Box active is intended for conventional usage ex works. In general, you should be able to play without amendments.

When you press the battery switch, the **red LED** will light up. If the LED does not light up, you might have to change batteries.

Occasionally, minor amendments of the in- and output level (for instruments, active boxes or in-ear systems) or the **MUTE**-function may be necessary.

Before changing the level, you should have read and understood chapter 4. Please decide afterwards if and what you would like to amend.

The following description explains the function of the jumper (**JP4, JP5, JP6** – solder jumper) **JP3** and of the potentiometer.

The potentiometers **P1, P2, P3** are so-called endless trimmers. That means that there is no end stop. The adjustment range includes 20 rotations and you have to be an experienced user in order to achieve the best outcome. To change the level, you need a very small slot screwdriver and some patience.



Amendments to the jumpers (**JP4, JP5, JP6** – solder jumper) may only be performed by an experienced technician and after consultation with us.

Warranty expires through inappropriate damage.

Please let us know your preferences and we will adopt the appropriate amendments professionally, reliably and swiftly.

4.1 Function Test

Please position the DI-Box active as illustrated below.



- Switch on the battery switch **bat. sw** to test the batteries.
*The **red LED** will light up. The **blue LED** may flicker slightly.*
If no LED lights up, check the batteries of the ANS-DI.
*If the **green LED** lights up as well, the MUTE-switch is switched on.*
- Operate the MUTE-switch by pressing it 1x until it clicks.
*The **green LED** does not light up anymore.*

DI-Box active ready for use.

- Please switch the **ANS-DI** off again.

4.2 Position and Function of the Internal Controls / Battery Change

The DI-Box active comes with a battery ex work. The jumper **JP3** is plugged in. The battery is attached to the lower battery terminal **Bat1**.
One battery is sufficient for operating the **ANS-DI**.



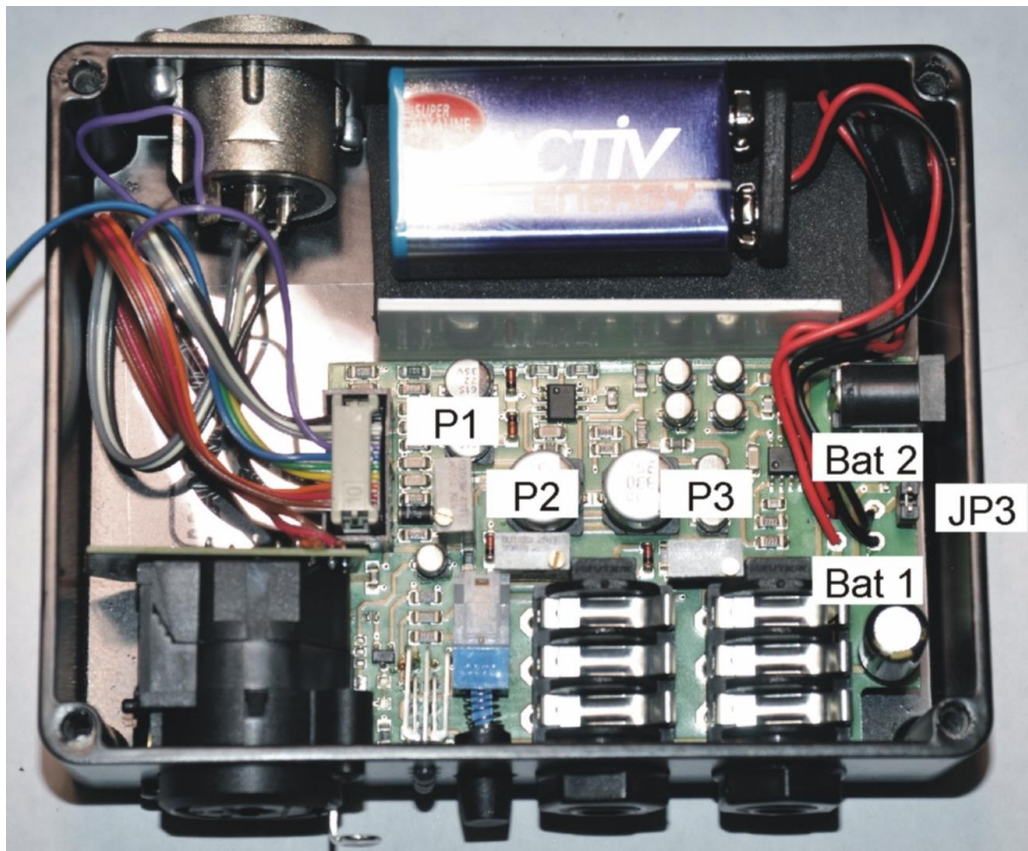
High volume sounds (meaning an extremely high pressure on the instrument) can lead to slight distortions, even if the battery is fully charged. In this case, you rank among the 3% of users with “strong fingers” and you will require 2 batteries for the DI-Box active .(see chapter 6, “JP3”)

Please open the box in order to change batteries(s) or make amendments to the internal controls of the Box.

- Remove the 4 screws of the cover.
You will see the main board and the batterie(s).
- Switch off the battery switch **bat. sw** to change the batterie(s) (Button off).
- The batterie(s) can be changed.
- Please test whether the **red LED** lights up using the battery switch **bat. sw**.
*If the LED does **not** light up, check the battery connection.*
- Screw the cover down again.

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4.3 Description of the Internal Controls



- P1** Input sensitivity combination input **active Pickup IN**
- P2** Input sensitivity jack input **Instr. IN**
- P3** Output level jack output **Amp. OUT**

JP3 Battery-Jumper
open = 2 batteries
closed = 1 battery.
When delivered (1 battery), the jumper is closed!



Caution

Incorrect connection can destroy the battery

When using 1 battery, please **only** use the battery connection **BAT1**.

*If 1 battery is used and connected to **BAT2**, the battery and possibly the battery port will be destroyed.*

JP4 By using a solder jumper on **JP4**, the jack input can also be supplied with phantom power. This is not standard.

JP5 By using a solder jumper on **JP5**, the **XLR**-input is supplied with phantom power. This is standard. In order to switch this off, the small conductor bridge inside the jumper has to be interrupted.

JP6 The switch / jumper serves the configuration of the **MUTE**-function. The settings determine whether the **XLR**-input **active Pickup IN** should be switched to mute (muted) separately or with the jack input. When delivered, only the combination input **active Pickup IN** is switched to mute.



These amendments may only be performed after consulting us and under instruction of our specialists.

Warranty expires through inappropriate damage.

Please let us know your preferences and we will adopt the appropriate amendments professionally, reliably and swiftly.

4.4 DI-Box active on the Mixing Console / Amplifier.

If a mixing console with phantom power is available, putting it into use will be uncomplicated. Please ensure that all components belonging to the mixing console / amplifier (boxes etc.) are connected properly.

The pickups are sensitive for external influences. The cable must be to a high quality (small capacitance) and according to be short.

For this function test, you need
1 XLR- (microphone cable),

The gain control of your mixing console should be set to insensitive, channel control and sum should be set to "0". Furthermore, all tone control should be set to "0" – or centre position and effects (echo etc.) should be switched off.

- Switch on the mixing console or amplifier and check the functioning of your system.
- Turn the input and output **"very low"** before connecting DI-Box active via an 'XLR-cable to the amplifier.
- Connect the XLR-cable of DI-Box active to your selected input of the mixing console / amplifier.
- Set the sum control to approx. 30%.
- Carefully regulate the system by slowly turning on the input control (gain control for mixing consoles) while playing your instrument.

After having performed all mentioned points, you should now hear your instrument through the speakers of the system.

Take your time adjusting the level and do not change more than one setting during the test. Position yourself like you are standing on stage.



Different positions of the pick up lead to different volumes and sounds.



**For questions and professional support we are available by telephone:
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4.5 DI-Box active on the instrument amplifier

The pickups are sensitive for external influences. The cable must be to a high quality (small capacitance) and according to be short.

For this function test, you need

1 XLR- (microphone cable),

1 jack cable

1 instrument amplifier with jack input.

- Connect the instrument amplifier on DI-Box active and check the functioning.
- Set the input and sum control to “**very low**”.
- Switch on the battery switch of the ANS-DI . (button pressed).
*If the **red LED** lights up, you can continue the function test.*
- Connect the bass to the **XLR**-cable (microphone cable) or a stereo jack cable (depending on the pick-up version) with the combination **active Pickup-IN**.
- **Amp. OUT** output should be connected to the input of the amplifier with the jack cable (instrument cable).
- Set the sum control to appr. 30%.
- Carefully regulate the amplifier while playing your instrument.

After having performed all mentioned points, you should now hear your instrument through the speakers of the system.

Take your time adjusting the level and do not change more than one setting during the test. Position yourself like you are standing on stage.

The use of DI-Box active monitors is an exception. You can connect them to the **Amp. OUT** output of the Box as well. Depending on the type, it may be necessary to regulate the output level. The same applies to in-ear systems.



Different positions of the pick up lead to different volumes and sounds.



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4.6 DI-Box active on the instrument amplifier and simultaneously on a mixing console

This situation applies to bigger events.



An additional „normal DI-Box“ from a sound technician is not necessary.

- Connect the instrument as described to the amplifier and further connect the balanced output **Sym.-Out** of the **ANS-DI** to the input of the mixing console.
- The settings for the amplifier are carried out analogous to 4.5.
*If the mixing console contains phantom power, the **blue LED** of the **ANS-DI** will light up. The battery switch can then remain switched off.*

After having performed all mentioned points, you should now hear your instrument through the speakers of the system.

Take your time adjusting the level and do not change more than one setting during the test. Position yourself like you are standing on stage.

The use of DI-Box active monitors is an exception. You can connect them to the **Amp. OUT** output of the Box as well. Depending on the type, it may be necessary to regulate the output level. The same applies to in-ear systems.



Different positions of the pick up lead to different volumes and sounds.

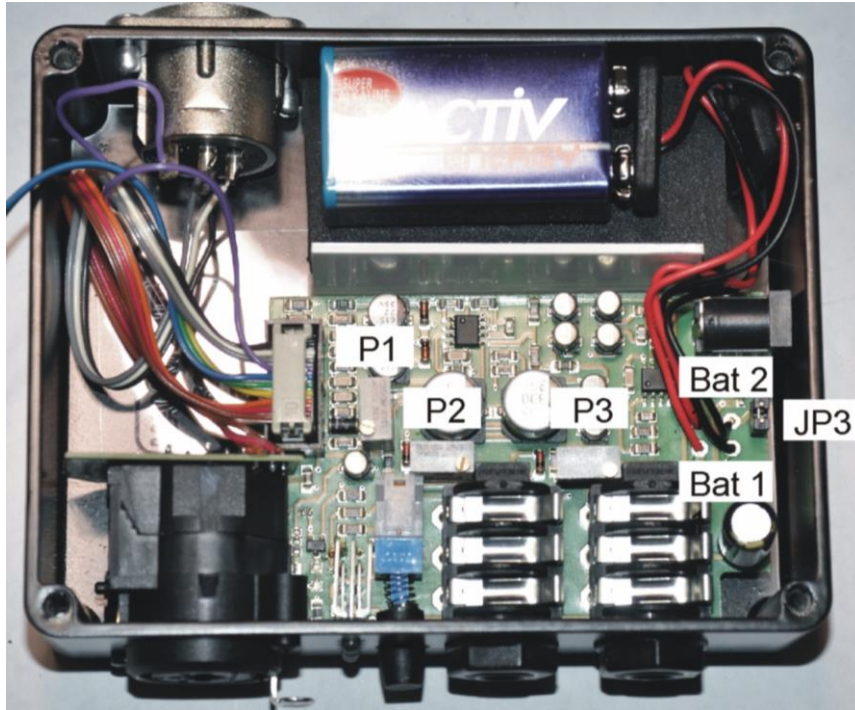


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5. Levelling



The level settings of the DI-Box active may only be amended by an experienced technician and after consultation with us.



- P1** Input sensitivity XLR-input **active Pickup-In**
- P2** Input sensitivity jack input **Instr. IN**
- P3** Output level jack output **Amp.-Out**

The separate levels are amended through **P1 – P3**. We recommend that you proceed as follows:

- Connect the instrument to the combination input **active Pickup IN** to **ANS-DI** and connect the output **DI-Out** to the mixing console.
- Switch on the mixing console and set the input control **Gain** to your desired position.
- In order to adjust your desired level, turn on the control **P1** until there is no more level at the output **DI-Out** .
- Then turn the potentiometer **P1** in the other direction until the desired level is set to the output **DI-Out** . Now, please do not change the setting of **P1** anymore.
- Connect the instrument amplifier / active box, in-ear system etc. to the output **Amp.-Out** .
- Proceed with potentiometer **P3** analogous to **P1** until your desired level is set to the output **Amp.-Out** .
- To conclude, connect your desired signal source (bass guitar, guitar, digital piano) to the input **Instr. IN**

- Adjust the signal level using the potentiometer **P2** to the level of the contrabass. The selected weightage of both input levels will be equally displayed on the **Amp.-Out** and the **DI-Out**



If appropriate measuring instruments are available, this method should be preferable.

Randomly swivelling the potentiometers does not lead to an optimal, desired outcome. In case of doubt, always begin from scratch with the setting of **P1**.

The output level of the signal source should be as high (loud) as possible. The input level of the mixing console / amplifier should be as insensitive (low) as possible This way external impact (humming noises, white noise) is minimised
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Personal Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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