

# Manual

# A N S

ABSOLUTE NATURAL SOUND

## professional DI passive

**Passive Pick-up System for Contrabass**



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## Content

2.	General Description .....	5
2.1.	Phantom Power .....	5
2.2.	Balanced and Unbalanced Signalling.....	5
2.2.1.	Unbalanced Transmission.....	5
2.2.2.	Balanced Transmission.....	6
2.3.	ANS-professional passive .....	6
2.4.	ANS-DI .....	6
3.	Technical description .....	7
3.1.	Pick up.....	7
3.2.	Montage and Application Basics .....	8
3.3.	ANS-DI .....	9
3.4.	Definition of terms ANS-DI .....	10
	Passive Pickup-IN- Combination Input .....	10
	Instr. IN- Jack Input .....	10
	Amp-OUT - Jack Output.....	10
	DI-Out - XLR-Output .....	10
	bat. sw – Battery -Switch.....	10
	MUTE - MUTE -Switch.....	10
	Light-emitting Diodes LED's, blue red green.....	11
4.	Putting into Use .....	12
4.1	Function Test of the ANS-DI .....	13
4.2	Position and Function of the Internal Controls / Battery Change .....	14
4.3	Description of the Internal Controls .....	15
4.4	ANS-professional on Mixing Console / Amplifier. ....	17
4.5	ANS-professional on the instrument amplifier.....	20
4.6	ANS-professional on instrument amplifier and simultaneously on mixing console .....	21
5.	Levelling .....	22

## **1. Performance Features**

The passive pick-up system is a complete and professional tool to ideally adapt your contrabass to any possible stage and amplifier situation. All you need is a cable and two batteries (9V).

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 ANS-professional 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.

#### **2.2.1. 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.

### 2.2.2. 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. ANS-professional passive

ANS-professional is an passive component. It contains a preamplifier to amplify the extremely sensitive signal of your instrument and thereby renders it irrespective of cable lengths and disruptions. It requires a power supply.

Depending on the stage situation, you can source power straight from a mixing console or an amplifier – if phantom power is available. This works perfectly fine. If no phantom power is available, the **ANS-professional** can also be supplied by the **ANS-DI** as a second component. Both options do not affect the functioning.

### 2.4. ANS-DI

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

### 3. Technical description

#### 3.1. Pick up

The pick-up is designed to play back the natural sound of your instrument as electrical signal as accurately as possible. Therefore, this electrical signal has to be adjusted to common amplifiers and/or mixing consoles etc. in order to enable smooth stage or recording operation. It is the amplifier's ear and it is mounted to the contrabass.



The connector plug of the pick-up is attached to the tailpiece using either a cable tie or the leather mount which is available as accessory. Please mind unwanted resonance of a self-constructed hold system.



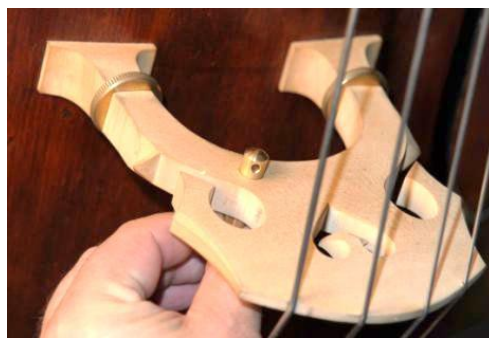
The leather mount is attached as follows:

- Put the leather piece on the tailpiece.
- The strap with a buckle should be put through the leather piece and into the hole in the G-string.
- Pass the strap through the hole in the E-String and back with the leather piece and tighten it with the plug.
- The second strap with the hook and loop fastener should be placed around the tailpiece and on the cable plug of the connection cable and shall then be tightened.



### 3.2. Montage and Application Basics

To be put into use, the ANS-professional has to be mounted in a conical hole that shall be drilled into the bridge (cable downwards towards the tailpiece). It should be pressed in firmly and you should be able to rotate it from the bottom using your hand (without a tool).



If your bridge has no such hole, you can send it to us after consultation. We will do the corresponding work for you.

Your violin maker should be able to drill the hole into the bridge as well. Therefore, he should contact us in advance in order to receive information about important details.

Rotating the pick-up provides great differences in volume and timbre.

When screwing it in tighter, a loud and deep tone will be provided.  
When screwing it in gently, a low and filigree sound will follow.

To find your personal optimum and your own sound, it is worth investing some time to find your appropriate position. This particularly applies to different stage situations as well.



**You should take enough time for this. It is certainly worth it.**



### 3.3. **ANS-DI**

The term **ANS-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 **ANS-DI**. Its disadvantage is that there is a sound loss of the instrument by interposing **ANS-DI**.

In order to avoid this, the **ANS-DI** 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.

### 3.4. Definition of terms **ANS-DI**

#### **Passive Pickup-IN-** Combination Input

This input is unbalanced and comes with stereo jack and XLR-port. It is made particularly for the **ANS-professional**. 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 **passive pickup in** and **Instr. IN-**. The volume balance can be adjusted using 2 potentiometers inside the **ANS-DI** (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 **ANS-DI** 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 **passive 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 **ANS-DI** 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 **ANS-DI** is fully functional without batteries.

#### **MUTE -** MUTE -Switch

The MUTE-switch is on the top of the **ANS-DI**. 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 **ANS-DI**, the XLR-input **passive Pickup-In** will be switched to mute either separately or simultaneously with the jack input **Say-IN**. Muting will affect both outputs **Amp-OUT**

## Light-emitting Diodes LED's, **blue red green**

**ANS-DI** 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

**ANS-DI** 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 of the ANS-DI

Please position the **ANS-DI** 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.*  
  
**ANS-DI** ready for use.
- Please switch the **ANS-DI** off again.

## 4.2 Position and Function of the Internal Controls / Battery Change

The **ANS-DI** 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**.



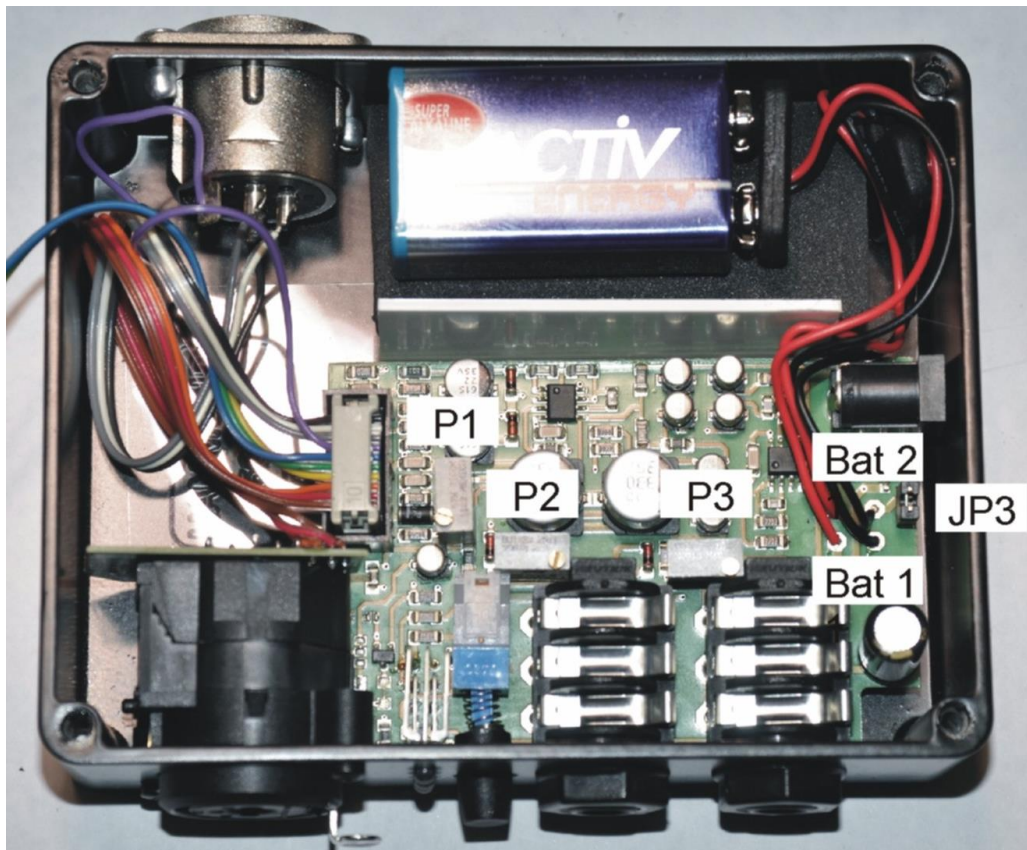
High volume sounds (meaning an extremely high pressure on the instrument) can lead to slight distortions, even if the battery is fully charged. In this case, you rank among the 3% of users with “strong fingers” and you will require 2 batteries for the **ANS-DI**. (see chapter 6, “JP3”)

Please open the box in order to change batteries(s) or make amendments to the internal controls of the **ANS-DI**

- 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 <b>passive Pickup IN</b> |
| P2 | Input sensitivity jack input <b>Instr. IN</b>                |
| P3 | Output level jack output <b>Amp-OUT</b>                      |

**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 **ANS-DI MUTE**-function. The settings determine whether the **XLR**-input **passive Pickup IN** should be switched to mute (muted) separately or with the jack input. When delivered, only the combination input **passive Pickup IN** is switched to mute.  
**JP4, JP5** and **JP6** are on the bottom of the **ANS-DI** board. To change their settings, the board has to be removed.



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 ANS-professional on 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 passive via an 'XLR-cable to the amplifier.
- Connect the XLR-cable of DI-Box passive 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:  
+49 6806 44449 .**

## 4.5 ANS-professional 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 passive 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 **passive 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 passive 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 ANS-professional on instrument amplifier and simultaneously on 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 passive 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.**

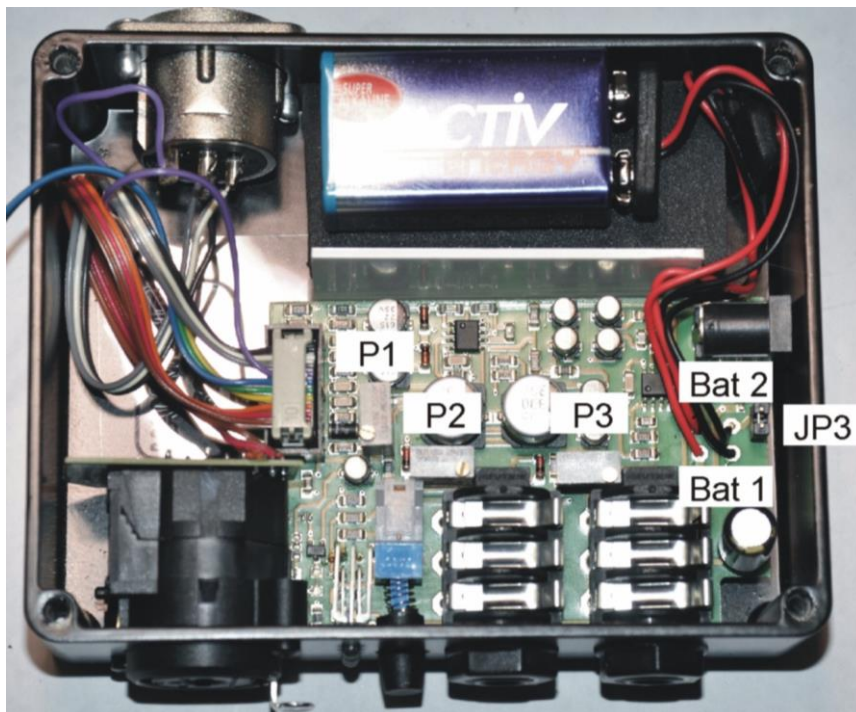


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## 5. Levelling



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



<b>P1</b>	Input sensitivity XLR-input <b>passive Pickup-IN</b>
<b>P2</b>	Input sensitivity jack input <b>Instr. IN</b>
<b>P3</b>	Output level jack output <b>Amp.-Out</b>

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

- Connect the instrument to the combination input **passive 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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## Notes

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