



**ASR Audio Systeme
Friedrich Schaefer
Hohe Strasse 700 / 5A
D 35 745 Herborn**

Telefon +49 2772 – 4 29 05
Telefax +49 2772 – 4 04 88

E-Mail asr@asradio.de
Internet www.asradio.de

Emitter Concept:

The ASR Emitter is on the market since 1982 and it is very different to usual amplifiers -

It needs no pre-amplifier, have **external power-supplies**, as option with **battery**, the cases are made from **acrylic glass** and they are big and power full.

Why does the Emitter do it this way?

In order to combine the Power of the transistor with the musicality of the tube!

The ASR main statement is: ***Power and Emotion !***

Please follow our thoughts in which considerations the **Emitter concept** has been developed.

Now the details:

The Emitter is more a main amplifiers with input-selector and volume control, and does not have a pre-amplifier part.

Why? Let us have a look for the usual situation at first:

What is the function of a usual pre-amplifier?

1. **Impedance-transformer** - A preamp changes the high-output-impedance of the source: Phono, CD- Player, D/A Converter into the low input impedance of the main amplifier.
2. **Level adaption** - A preamp often increases the signal level from the low level of the source to the high level that some main amplifiers need.
3. **Volume control** - To adapt the signal from the source to the requested volume.
4. **Input selection** – The pre-amplifier selects the input signal when more than one source is connected.
5. **Phono-pre-amp** In the former years many pre-amplifier had a built in phono-stage.

It depends on the thoughts of Hifi in the first years.

Today we have only sources with high-level-signals - like such CD Players- or separate phono-amplifiers, which amplify and equalize the quiet phono-signal.

All this was born because from the technical requirements from the first HiFi-systems -where the music was almost always from a record - until 20 years ago, this was totally logical.

Proposition : today used sources are strong enough to control amplifiers directly.

The source from today, like CD players or converters etc., have very low impedance, typical under 100 Ohm, but even with tube-output-stages of CD players and converters, we get practical value today.

The sources of today have a high output-level till 6 Volt, this is more than enough to control an amplifier even the silent CD Player have minimum 1 Volt !

Amplifier needs in the middle of the level almost 100 to 300 mV – results :
by normal volume the output-level by actually Hifi-units are almost smaller as the input-level-signal.

Proposition : Input-selection can be built in anywhere.

Input-selection: in first time the signals were put through long cables to the switch in the front. Therefore a strong signal from an amplifier can be disturb, or skip over from other cables, and you can hear the notice from the tuner.

Today this will be done by particular relays on the input directly!

And therefore the cable between connectors and relays could be very short, it's whether if there is in a pre-amplifier or in an amplifier.

Proposition : Phono-stage is better to built as a separate unit !

Phono-pre-amplifiers are specific for very quiet signals from the cartridges. Therefore they have a very high amplification. This could ever been in the millions. For example: a pre-amplifier have a gain factor as of about 5 to 10 times.

Because of this very high amplification they reacts are very sensible to the disturbances- and therefore they should be placed as a separate unit and near the record player.

But all this is not compatible in a normal pre-amp.

On the output of the pre-amp is an equalized high signal - which could directly be used in the Emitter.

Proposition : the transfer of silent signals between pre-amplifier and amplifier promoted loses.

How does the signal shows of the used pre-amplifier and amplifier combinations ?

For example by playing loud music:

The signal of 1 Volt comes from the source, becomes damped lower in the level-controller, then higher amplified to 1 Volt again, than transferred to the amplifier. This amplifier, according to 50 Volt, transferred this to the boxes.

This example by playing silent music:

1 Volt CD reduced to 0,01 Volt, than high amplified to 0,05 Volt on the pre-amp-output. This would be 1 Volt by the amplifier.

And this very silent signal about 50 milli Volt must be transferred by the cable to the amplifier - and everybody knows, that even higher the signal, so lower are the losses into the cable.

Proposition : another level into the signal path could not make the signal better!

Of course, a good pre-amplifier does something good for the sound - but there is some more in the signal path, like cables, plugs, connectors and active output-stages. Maybe this can make the sound better, according subjective, by "lovely" distortion.

But is this more exact? More right?

Of course, it cannot be otherwise, that the additional parts in the signal path are adding something. Or the dynamic is reduced on the contact by the crossover. If you like it – It's o.k. - But technically it could not be better!

Sure, this applies till there is not a crassly misadjustment - for example 2000 Ohm output resistance to low-ohm input. Than an additional amplifier makes sense, but with the usually impedance, today sources should be no more longer an issue !

The logic of the signal path :

How much sense makes it to reduce the signal at first, than to amplifier, than again reduce maybe more silent, and to send it to another unit, and than amplify it again ?

Isn't it be more logic, the signal should be let alone as far as possible - and than where it is needed to damping or - if necessary - to amplify.

What is a following logical consequence of all this thinking :

The Emitter amplifier with input selector and volume control!

How did we get there : we tried out what the best pre-amplifier is. It was a potentiometer instead of active elements. And it sounded the best, when the potentiometer was nearly the amplifier-stage.

This was the basic idea of the Emitter!

The logic leads us to the concept of an amplifier-stage with input selector and volume control !

Concept with Poti till 1991

Each potentiometer, that ever been built in most amplifiers, have losses. These losses are smaller, when he is turned up, at the smallest when he is full turned up.

The Emitter till 1991 was designed to have less losses - therefore you should turn it on as far - because if you fully open the volume-controller there is smallest loss. And therefore the Emitter till 1991 had a switchable sensitive - so that even at low levels (almost) fully turn on!

So the Emitter till 1991 was built with especially potentiometers from Alps or Noble.

And on request to the Emitter I, and serial to the Emitter II, the Emitter was available with mechanical switch-control with 24 resistors and gold-contacts. So the loss of sound is less than a potentiometer with movable sliding contact.

Concept from 1992 Relays switch-control :

In 1992 there was a new solution for the input selector :

Instead of a potentiometer with all detriment as wear, sound-losses and difference left/right.

A new solution -

The resistor-stage-controller !

In the process 12 resistors switch the input-level and another 4 set up the amplifier - gain. And the whole thing, that the relays are not in the signal path.

How does it work? Control, without anything in the signal path?

The relays switch the resistors to the ground !

And - depending on the level - set also the amplifier - gain.

Up to a level of 50, the input-signal is attenuated, at a level of 51 it is unchanged passed.

The Emitter behaves principally like an amplifier-stage, from a level of 51, the gain is increased !

Why external power supply?

The emitters are outsourced-one - the power supplies are in separate boxes, formerly a widespread technology that other manufacturers have stopped for financial reasons.

For it is clear that a further case with connectors, cables, etc., will cost significantly more money- as if it's all packed into a box.

So why it is that complex?

We do this for two reasons - because of the electromagnetic fields and due to the vibrations that are produced by transformers.

Transformers produce large electromagnetic fields in the amplifier - Sprinkle electronics.

From these fields, resulting in the interconnects then tension-
And these tensions from the interference superimposed on the music signal and then it sounds less clear-

The music is losing momentum and precision!

Therefore, the transformer likes to be as far away as possible from the built-electronics shielded and even more.

Of course it is better if the emissions from the power cable, transformers, rectifiers, etc. are out - but you can shield it. Another important point is the vibration of the transformers, which are hard to banish with reasonable effort of the case.

These vibrations move the components of the amplifier electronics in vibration - and modulated based on the signal - and this also makes the playback unclear.

Therefore it is more consistent to move out the transformers from the box into an extra box?

How big would an Emitter in one box be?

Furthermore, if one looks at the time, how great would be the emitter, if one would try to grab all the many parts in a single package? Think of the times when an emitter-II before the were determined by a box 60 cm wide, 50 deep and about 80 cm high and the whole thing weighs 130 kg then!

It is impossible to be move to a shelf and you can't lift it anymore!

Why such a big power-supply?

Sure the same power would also be with a much smaller power supply and would go well with less-electrolytes, technically a fraction of the capacity.

There are plenty of other devices which show what it works-but is it really the pregnant sound of an Emitter?

For a big power supply the voltage is more stable by high levels-

The actual amplifier has less to regulate and works more stable with it, and all the results in a relaxed sound, which remains stable even at high levels

This improves the space, the sound remains stable even at high levels and is not modulated by the bass that is not changed in at loud bass pulses

Especially tubes override fast-acting only because of the essentially even-numbered Klirr K2, K4, K6 and so not as annoying as most solid state amps.

This is especially true in comparison to the guitar amp, which create your sound almost only on the distortion!

Why so much transformers?

Why so many transformers - Well, that could also a large transformer do-but we use separate transformers for plus and minus, and also separate rectifier for plus and minus in flow less transients - reducing the potential on the mass of stable and the sound is more stable!

A big power supply has a better handle with the speaker!

Speakers produce while swinging counter-currents called back EMF (Electro-Motive Force) which flow into the amplifier circuit and the back can confuse and degrade the sound.

Through the big power supply, the Emitter currents this process much better - he is only a little out of his concept - and so it has a good control over the speakers.

Much higher than many other amps - and this is most especially small internal resistance of the Emitter.

Since it needed especially in tubes because of the output transformer to control a very large effort to turn the bass properly.

Energy-save-modus - the Emitter is two in one !

You know that, sometimes you might have two things in one:
but it's not-

A small amplifier resolves good at low levels, but does not hold as much power

And often , if you want to have it loud, you need a big amp.

A great amp just has more steam but not often enough resolution at low levels!

What is the solution for it:

An Emitter with energy save circuit

What does it do?

If you listen soft music, at a for yourself adjustable level:

- the Voltage will be halved into the power-supply
- of course, the amplifier have only a quarter of the power
- but also only a third of the energy consumption
- the transistors have only to regulate the half voltage down so they work better in her optimal range for small levels
- and the resolution and the noise ratio improved !

A pleasant side effect - the amplifier remains cold - this is good for the lifetime!

And if it should be louder - no problem - then the Emitter switch to **full power**

In connection: explaining stage 1 and 2

To adapt the emitter perfect for your personal needs, it has two stages:

In **stage 1** the level is adjustable from 1 to 61 - and the Emitter switched the energy-saving-mode in dependence of the level. Standard is the switch by level 35.

This is the setting for usual signal sources with output-level of 1-2 volt.

At a higher level than 61, the Emitter would be overloaded by signal sources like CD with normal output-level and by full modulated music – so distortion begins.

Therefore the stage 1 is configured to a level of 61.

If your signal source is more quiet - for example by tuner, phono- or MP3 player - please switch to **stage 2** - then it goes further - till to a level of 76.

At the same time in stage 2 the energy-saving-mode is turned off.

Construction of the internal-wiring in the Emitter of silver :

According to our experience the cables of pure silver sound the best.

With the much lower-price silver-coated copper-cable are not so good !

Therefore all audio-signal-carrying cables inside the Emitter are made of solid silver wire - and with silver solder - with very high silver content - soldered.

The complete signal path - from silver:

At first the connecting from the input jacks to the pcb -

Then the internal cable from the input selector to the amplifier circuit-

And of course the output cable to the speaker-pole plugs-

in the Exclusive models also the cable of the central ground-point to the speaker connectors.

From 16 wires, each 0.8mm – there is a cross section of 8 qmm pure silver !

If you order the optional WBT Nextgen connectors, made of solid silver, the complete signal path inside the Emitter, inclusive the sockets, are made of single material.

If you are still using silver wire, this applies for the complete signal path from the source to the speaker.

Emitter case of acrylic :

By the casing we tried to use less metal as possible - but acrylic!

Why?

Acrylic has a very balanced resonance spectrum; therefore it is also often used for turntables.

Thus the Emitter have been from the casing no damaged resonances for the sound.

Therefore the casing of the Emitter is made by moldered 8mm acrylic glass.

Mounting-rail from solid brass:

The mounting-rail for the transistors

is from solid brass - why?

Brass have very harmonic resonances, therefore it will be also used for musical instruments. Or do you know a trumpet, which is made of aluminum?

Which speaker is the best for the Emitter?

The Emitter is built for all the speakers with a lot of power.

From the power hungry panel-speaker to the highly sensitive horn speakers!

Because of the low efficiency by the panel-speakers, they call a highly powerful amplifier - which rather provides a transistor amplifier.

But some of the transistor amplifiers sounds are - due to the fined resolution of the surfaces - often over-present. So from the sound its be provide a tube, but they are - if they still have much power - very expensive !

The Emitter connected both worlds to the area:

Enough power for the adequate level of efficiency even in low-connected, with a relaxed tone to surfaces such as Maggis, Logans, etc. in top form !

„Normal“ dynamic speaker

Normal dynamic speakers are often less demanding - and always with affordable tube - but often the complex switches and large chassis requires more power and control – the Emitter can deliver it very well.

So the Emitter is traditionally the first idea - by difficult speaker and they were a secret-tip for the Infinity Kappa Series - on which other amps are frustrated.

Horns and high efficiency speakers like Tannoys:

Why do you need so much power for a horn from an Emitter but even a 10 watt from a Triode is doing this ?

Of course right but often this speaker chassis with very big magnetic- they need very much power - because of the very big opposite EMK which they produce – and especially control !

The Emitter can do it better!

In addition, the excellent noise-ration on the Emitter comes by horns to full effect!

And saves the sond of pouring rain during the music breaks, as with many other amps !

Something does not fit:

Some speakers, are not really good to combined with the Emitter -when these are designed for better cooperation with special properties of tubes-

Especially their low attenuation factor - these have a special design of the woofer.

This speaker have with a powerful transistor amplifier and with low output impedance, like the Emitter, to less bass - so the sounds of a tube is often much better.

Also a few special things, that we have built into the Emitter :

Overload circuit with clangor identification:

This circuit was developed to protect your speakers, special the midrange speaker and the tweeter.

Why :

The Emitter is to be able to give several hundred watts to the tweeter - and the Emitter is clearly not aware of it (as well as other amps - which can only 10 watts into the middle) - what happened - the tweeter will be burn out.

When does it happens - not with normally music - unless you use a test CD - but rather by overdriving the amp when its too loud.

A overload occurs, when the required output voltage is higher than the operating voltage of the amplifier. Thereby the output-signal is massive distorted by amplifier of all types.

And this distortion have much more energy into the middle- and high frequencies as normal music, and than it will be dangerous for the midrange and the tweeter !

Therefore the Emitter have installed a Klirr idendification - and switched off silent or complete.

To my knowledge there are no other amplifier with such a Klirr idendification.

They don't switched off - and play well above the distored-line - the ear can be easy to cheat-

One hear the short Klirr-point hardly - some listeners are only over longer time significant disturbed

The best example for this is a overdrived transistor-radio or cheaper car-radio, where the power is only for 10 % Klirr is specified.

So get out 1000 watt POP by the 100,-Euro "roar-cube"

You will notice the Klirr at peak-levels to other effects, like missing dynamic or the high tonal is crying, the space is lost, the space collapses, etc.

This is at first very loud and it does hurt - and would be better swith off.

Other amplifier continue playing - the Emitter is switched off - not for secure himself, but to secure your speakers !

This swithing off is sometimes addused to the Emitter - in not knowing the background of this circuit.

Therefore this protect circuit by the Emitter is switchable !

Direct-Input and Direct-Output

It's often happens that-connect our customers a single source device at the emitter for this we have the direct input that bypasses the built-input selector.

For each relay in the signal can only worsen the sound- the relay has two soldered contacts with the board- then internally, the contacts on the reed switch again and soldered to the contact we have then other material for best contact- the signal has to contact a couple of times by other materials. Because the direct route is logically much better.

Especially the direct input even an extra guide to the ground cables mass point has separated-from the other inputs, which further improved the sound.

The relay with the logically more applicable on the output-as indeed are some very high currents switched off and the contact materials are designed for best contact and not for the best sound.

A solution without a relay is rather more effort than with relay, the protection circuit is more complex and switches the outputs of disorders protect almost short- to save your speakers.

Fortunately, everyone uses only a single speaker, and therefore the direct input installed in series.

When multiple speakers or headphones should be connected - then it's not possible without a relay - because somehow the main speakers have to be shut down!

Battery-Power-Supply

The emitter is one of the only amplifier that uses a battery power supply for the input stage

Why :

The voltage of power is still something of the 50 Hertz, and other disturbances in it, the other devices are especially problematic because it can couple-digital devices such as CD Player D / A converter, etc.

Therefore it is then logical, to try it again with the cleanest known as a voltage source the accumulator.

For the whole amplifier this is obviously a bit too complicated, so first times for the most sensitive area, the input stage

Because this need is a low voltage and a low current.

So we are produce since 1997 the Emitter with battery power supply - preamplifier for since 1984!

- and have had the experience with battery it sounds simple musical, relaxed,
- and the room opens up even more!

And thus have a lot of experience-to the example such a battery power supply very many electrolytics need-because the battery during discharge through the chemical process also (quietly) interference-making
and if necessary, the amount of electricity is not well can deliver as fast as a capacitor!

And because of this noise we have installed a filter before the electrolytic capacitors.

And so we sell the most emitter with battery -

Another part of what makes the legendary sound of the battery.

In our brochure has:

*Playing is with the battery power supply **homogeneous, strong and sovereign-
Just typical Emitter !***

Noch etwas zum Allgemeinen-

Is the Emitter the best amplifier of the whole world ?

There are many manufacturers that say about your products, yours is the best-which is particularly common among the hifi manufacturers. But how do you define that?

And there is the best ever? Is not that also a matter of taste!

I would say, is not the best thing in general, but the best for each individual!

And therefore it is not adjudicating, if it is the best for other - but **for you !**

And so it is - because I could have all things together - if the amplifier will be very small, so he cannot have a big power supply - and then he have not so much power.

And some properties close to holding each other out and it's your decision what is important to you, not the tester in the Hifi magazine, perhaps has quite a different flavor and thus quite different ideas!

ASR is therefore building large amplifier with **certain properties- expensive made** , and **the sound relaxed**-built to the most demanding speakers to driving with power- **and thus to enjoy music calm and relaxed!**

Who else wants other, who is the emitter too large to relax in the sound or by design. of who do not like him, there are plenty of other very high-quality products on the market

But we know a lot of customers who like the emitter just as it is-
And therefore still partly true for over 25 years!

As the Emitter is made :

Emitter constructed and developed in Germany with local parts

The Emitter is constructed as far from in Germany produced parts:

The cases are from a company from "Sauerland", the main-unit PCB's from a company only 15 km away. The capacitors from Belgium (BC Components, at last Philips), the transformers from "Münsterland", and acrylic from area Frankfurt.

The Emitter constructed with very high precision by ASR. Already the PCB's are fitted by employees who do nothing else for many years and soldered with silver by hand in the factory in Herborn.

Of course, some things can companies from Asia cheaper, but have a different understanding of the world and often do not understand what we want and ultimately the emitter is too specifically, deviates too much from the norm in order to make sense of a Standard products manufactured to be established company!

So the Emitter -according to my knowledge- were not be copied, which in my experience in China, and otherwise by all quality and expensive high-end equipment has been tried!

The ASR Service :

for we are always highly praised!

You can call and ask us every time- no service times with only 2 hours a week and expensive 0180x or 0900 he numbers!

You will get always an information, no matter what it is, and no matter how old your machine is.

Each e-mail will be answered ! Often even by the boss himself !

Even if the boss sometimes gives you the advice, instead of an update would rather buy a new actually Emitter.

Because it will be cheaper for you as a customer, even if it is first time our turnover prejudice- but we are satisfied customers and more important !

It is more important a customer made long time satisfaction !

Therefore you have to call us by phone in the morning, till before noon - we are just producers and working hours on weekdays 7:00 to 15:00!

And we have done also a lot to help you- even you are planning to by a used Emitter and to be pre-inform.

There are extensive information and pictures in the history and even a guide for buying a used on the website !

Stable prices :

Of course it is nice, when for a 25 year old Emitter the half of the original price would be demand, and often also is would be paid- but please understand if we are discourage from very old units, also sometimes of a very expensive repair. Because by a Golf-I it will be also not re-new a new engine.

Then you would rather give a little more, and buy a unit what younger, because in relation to the age, the newer used Emitter also acted much more expensive!

The more philosophic question – for me is not easy to answer - especially in English

*In the design process I work more like an artist, like a painter, a sculpturist
and use my mind to follow up the impulses of my bottom- hope that is the correct phrase.*

I get impulse and ideas how to make it more harmonic, closer to music

follow the soul of the music

*and use my technical experiences and knowledge
to bring it to electronic and mechanical design solutions.*

I hope this explains a little bit what I try to do-

follow also my heart and not only the hard technical things.

*I am not able to name a special factor for bringing Hifi and Music in emotions together-
it is a sum of all things built in our amplifiers.*

And I am also led also by simple logic :

- *Disturbing things like trafos has to be kept out of the amp*
- *make the signal path as short as possible-*
- *and make everything very very stable.*