

We thank you for your confidence set into our firm and our product and request you a lot of joy while listening music with your new ASR Emitter!

We as manufacturers, the firm ASR Audio Systems Friedrich Schäfer, produced for you the Emitter with great care exclusively with **highest quality** and **selected** components.

If you have questions that your dealer can't answer, please, call us during the normal business hours, Monday till Friday from 7.30 to 15.00 o'clock middle European time.

The operating manual consists of **two parts** : The essential basics are discussed at first, the details are explained more precisely in the following part.

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<u>!!! Please, read carefully this operating manual before you set up your Emitter and</u>	

make yourself familiar with the qualities of the Emitter !!!

That will help you to use optimally the diverse possibilities of the ASR Emitter and to prevent damages, that may result of inappropriate operation.

The operating concept of the Emitter

The Emitter can be **operated** in all functions with the **three golden knobs** and the monitor button. The use of the **remote controller** is much more comfortable.

The **display board** of the Emitter which is located behind the front panel shows the current operating state to you with the help of LED's and illuminated letters.

On this display board, occurring troubles are immediately announced to you. Please consider pages 14 and 15 of this operating manual if a trouble should occur and deal in accordance with this operating manual.

The power units of the Emitter allows the operation in the so-called **energy saving mode** when the operating voltage is sloped down. The switching point of the energy saving mode to the full power operation is variable. However, the Emitter operates for the optimal care of the amplifier in the first minute after switch-ON only in the energy saving mode.

After you have set up and wired your device according to instructions at a suitable place, please turn the device into "Standby".

The LED's for Standby, the level display as well as the LED's for the selected input light up for 10 seconds. Now you can switch ON the Emitter with the ON / OFF switch or the remote control.

Unpacking the Emitter

After opening the carton, you take out the devices. Loosen the adhesive strips cautiously (please do not cut through) around the foam plastic foil and keep them for possible later use.

Then you may test the scope of delivery for completeness :

1. amplifier
2. programmable remote control
3. Power unit, 2 piece at the case of Emitter II. with 150 cm of power cables 3x 1,5 qmm
4. Repair lot
Allen wrench 3 mm for case screw joints
Replacement screws
Replacement fuses
5. Care set
Bottle of anti static plastic cleaner
Special cleaning cloth for cleaning of acrylic material

Do not turn ON the amplifier for approximately 2 hours after unpacking, in order to allow an approximation to the room temperature. In the case of very cold and moistly weather, moisture would be able to have suppressed itself in the device. This must dry up completely before switch ON.

The place of installation

At the place of installation the ASR Emitter should not be exposed to moisture, extremely high or low temperatures. In such a way, set up the Emitter that the air can circulate freely to the cooling elements. The waste heat resulting through the high quiescent current of the Class A/B- construction of the Emitter must be able to flow off freely in order to avoid overheating.

The power units have only a small thermal development.

The acoustic isolated installation of the Emitter

A well choose, **acoustic isolated installation** of the Emitter improves the tonal result very much. You can use for example damping plates that are offered by many manufacturers.

You achieve an even better result if you derive the oscillations directly at the cooling element.

The Emitter II is furnished in series with spikes. Please unscrew the spikes so far and then lock them well till the normal feet does not touch the ground.

With the Emitter I you can put big **spike** cones under the cooling fins.

For optimal linking, the pad for the spikes should be made out of a fixed, hard material.

You achieve this for example with a granite plate or the ceramic pads available with us.

Also at the power units a good **isolated installation** results in **sound improvement**.

A simple stacking of the individual power unit cases can damage sound clarity.

Therefore, please set up the cases individually and separately.

A damping plate with strings or spikes below every case can improve the sound again.

Of course you can also use a rack. Please, in this case pay attention however to a stable and vibrating decoupled place. The distance between each case should be at least 10 cm.

The distance to the Emitter should be more than 20 cm.

The power connection of the Emitter

The **ASR Emitter** is equipped with separated power units in order to achieve best possible tonal results.

When the amplifier is switched OFF or is turned in position "Standby", only a small

auxiliary transformer with very small power consumption is working. Only after switch ON, the main

transformers are turned ON. Before the connection of the cable from the amplifier to the power unit, the

amplifier must be switched OFF. The connecting cable of the amplifier should be plugged in at first with the plastic nose into the line plug at the back plate of the power unit case.

After this you can connect the Power unit with your power supply network!

If you want to separate the combination between amplifier and power unit, first switch OFF the Emitter.

After this, please wait until the complete expiration of all LED's.

To **unplug the cable** from the socket connector at the power unit please bend away the clip at the connector.

If this connection between amplifier and power unit was separated by mistake once

before the LED's had gone out, please wait before you plug in again at least two hours.

As a result, you avoid damages at the plug-in connector.

Three LED's are positioned in the power unit in the middle of the power unit board:

The red LED lights up if only the standby transformer is supplied with voltage, in addition a

yellow LED lights up if the transformers are switched into the energy saving mode.

All three LED's, therefore red, yellow and green light up when the main transformers work in normal operation with full power.

Additional two yellow LED's at the left and right on the power unit board light up while attaining the voltage in the energy saving mode. After switching to full power, the correct full power voltage is shown by the light up of two green LED's.

Amplifiers of the power class of the Emitter with very extensive power units have a very high maximum current consumption. Therefore please use, if possible, for the power supply of the Emitter an own wall socket or a very high quality distributor socket.

A clean, undisturbed power supply is necessary for a good sound result.

You achieve the tonal best result if you use for the Emitter and for their other Audio devices in

each case a separate, shielded power cable with at least 2,5 qmm per core to your fuse box place.

Please protect this connection with an 16 ampere slow blow fuse, installed in your fuse box.

The ground connection, the determination of the correct phase

Every further device which is connected to the Emitter inserts interference voltages via its network connection into the Emitter. This can impair the tonal result.

We recommend you therefore to test the tonal effects after every new connection of a device and to measure the correct phase position of the main power connection for best sound quality.

Please **measure** all devices separately. Connect an AC voltage meter for metering 250 Volt AC between the net grounds and the Audio grounds (the RCA sockets) of the respective device.

The correct power plug polarity is the one with the smaller voltage rating.

In the case of the Emitter, the correct polarity is hardly to be defined exact by its specific construction with shielded transformers. A voltage difference is hardly perceptible.

The use of the ground lift switch

At the power unit case of the Emitter you can find on the back side above the net input socket a so-called ground lift switch (Ground lift Switch).

If in such a way this switch is in position "1", the power network ground is connected with the ground of the Audio devices (the RCA sockets).

From **safety reasons**, the **audio ground** should be combined **with the** net ground in every Audio equipment once. However, hum loops can result with multiple ground connections.

Put this switch to Position "ON", in case of all signal sources (CD, Tuner, Tape) connected to the Emitter have only an two pole power plug. If one or several of these of the connected devices is equipped with a three pin plug, please check whether the sound picture modifies itself while changing the grounding switch and use in the case of doubt the "ON" position.

The accumulator power unit (option)

You have the option to supply the input stage of the Emitter with a separate accumulator power unit. This is the **optimal solution** and allows a smooth and extremely exact sound reproduction.

When you have set up your Emitter, please plug in the separate cable into the accumulator unit case and connect it to the power supply network. After this please charge the accumulator some hours.

- When the Emitter is switched OFF, the accumulators are charged with low current.
- In position **Standby** the input stage is supplied for **pre warm up** from the charging transformer. This is made for good sound immediately after switching ON the Emitter.
- After switching **ON** the amplifier is supplied out of the accumulators. The charging transformer is separated from the power net. The voltage of the accumulators is **checked** during operation.

- When the accumulators are empty, the charging transformer is switched ON again. Now the Emitter is disconnected from the accumulators and supplied out of the charging unit.
- After **complete charge** the charging transformer is disconnected from the power net and the Emitter is supplied again from the accumulators.
- The capacity of the accumulators is calculated so generously, that the Emitter can be operated constantly for more than **100 hours** from the accumulators.

Caused by the very high capacity of the accumulator unit also during charging the sound quality is much better than the one of the standard type.

You can operate your Emitter also only with the standard power units. In this case the supply voltage is switched by relays to the normal voltage supply. Please take of the 20 pole cable from the Emitter out of the accumulator unit. You can do this also to make comparison between the standard version and the accumulator supply unit.

Technical data Separate case for accumulator power supply of the input stage of the Emitter, 6 accumulators in each 6 Volt/ 10 Ah, buffering capacity 400.000 uF, fuse protection of the charging transformer is 500 mA slow, of the accumulators slow 5 Ampere.

In position Standby, the Emitter is preheated with ± 9 Volt. During charging the amplifier is supplied from the charging circuit. In normal operation the accumulators are discharged and the 72 VA Philbert coat cut transformer is separated by relay in all connections from the power net.

The accumulator is switched with MOS-FET's to the Emitter. When the voltage at the accumulators is lower than 16,5 Volt, the unit switches into charging mode. If then during the charging process the voltage gets higher than 20,1 Volt, the unit switches to normal operation.

These functions are controlled via an optical digital logic, that is free from electric fields.

Warm-up time of the Emitter

New amplifiers need a **burn in** time of approximately 100- 300 hours to achieve their full sound quality. The Emitter is equipped with a very big amount of capacitors.

This capacitors need much time to reach **full performance quality**.

As a result, your Emitter may sound at the beginning less powerfully.

Best results will arrive if you play your Emitter with a small volume of 20-30 in the energy saving mode with a high powered music or a burn-in CD.

Also when you don't use your Emitter for a longer time like an vacation, the tonal quality may decline a little. After some days of use this will be normal again.

As every other amplifier, the Emitter achieves its **operating temperature** approximately 1-2 hours after switching ON. This is the first precondition for a harmonious sound picture.

From our experience, it proves to be the best combination of device care, energy saving and sound quality, to switch ON the Emitter approximately one hour before you would like to listen to music.

Please warm up the Emitter in the energy saving mode and switch him OFF only if don't want to listen to music for a longer time than 2 hours.

The connection of devices to the Emitter

In order to achieve best possible sound results we recommend you to use as short as possible cords especially to phonographs. The Emitter should be set up therefore if possible near to the signal sources.

The Emitter is built up with completely separated channels. The RCA sockets on the right channel at the

back panel are supplied with a red colour ring, the sockets of the left channel are marked with a black colour ring.

We recommend you to connect the available devices with as highest quality as possible RCA cable and plugs, in accordance with the legend on the reverse page.

The inputs of the Emitter are all technically the same and only distinguish itself through denotation. Only the Tape input and the Phono input in case of the use of the plug-in phono board are different.

The connection of a phonograph to the optionally available phono board is described separately.

!! Important !! The Emitter is to be switched OFF generally in order to avoid harm to the loudspeakers as soon as cable connections are positioned or changed.

Direct input (option)

At the Direct input one input socket is connected with solid silver wire directly with the relay stepped level control. Also the ground wire of this input is led separately.

In order to achieve highest possible quality this direct input is used with Audio equipment in which only one signal source is used. In this case, the use of the normal inputs with at least 2 relays in the signal path means an unnecessary degradation of the signal.

This input is **not** led via the input selector switch, therefore you can not switch OFF devices connected to this input.

If you switch the input selector switch to an input where a device is connected, you will listen to both signals.

Therefore, please switch to an unused input when you use the direct input.

But don't use under no circumstances the perhaps available balanced CD input.

The connection of a tape deck to the Emitter

The connections to the recorder "LINE OUT" should be connected with the "TAPE" sockets on the Emitter. The connections "REC IN" or "LINE IN" at the recorder should be combined with the "TAPE OUT" sockets of the Emitter.

A second TAPE or DAT device can be plugged into another input, for example DAT.

However, the possibility of rear tape control of the tape deck is only available when you connect the device to the TAPE sockets of the Emitter.

For recording please switch the input selector at the Emitter to the desired signal source.

The signal of this selected source is coming out at the two **TAPE OUT** sockets.

Through this also TAPE to TAPE recording is simply possible.

!! Important !! It is to be ensured without fail that one must never switch to the TAPE input belonging to this tape deck during a recording or in the case of the tape deck is switched to recording "Pause". In this case you connect the input of the tape to the output. The resulting high-frequency oscillation in the tape deck may cause harm to your loudspeakers!

To avoid this please switch ON Dip switch No. 5 positioned on the left side of the supplementary board. (see also page 13 : Set up of the configuration).

In this case the monitor input is switched ON instead of the normal Tape input.

This avoids the feedback oscillations. But then you can't make records from signal sources which are connected to the tape input.

The connection of an auxiliary equipment to the Emitter

The Tape input can also be used for inserting an auxiliary equipment, as for example, an equaliser. Please connect the sockets LINE OUT with the TAPE sockets at the Emitter. The sockets TAPE OUT at the Emitter should be combined with the LINE IN sockets at the auxiliary equipment.

The auxiliary equipment is inserted into the signal path by pressing the monitor button.

The connection of loudspeakers to the Emitter

The Emitters are designed to drive loudspeakers with an impedance that should not be lower than 2 ohms in the range of 20 - 20.000 Hertz. To protect the Emitter, the DC resistance of the connected loudspeakers is checked by the protection circuit.

This circuit is not installed at Emitters with direct output without output relays.

The DC resistance of the loudspeakers is announced with LED's in 3 steps

- less than 6 ohms through a green LED
- less than 3 ohms through a yellow LED
- under 1,5 ohms a red LED lights up and switch-ON of the amplifier is blocked.

In the case of amplifiers with a second loudspeaker output (B) resistance values less as 1,5 ohms are only announced by a red LED and switch ON of the amplifier is not allowed.

The loudspeaker cables are connected to the pole terminals on the back panel. The positive terminals are wired to the red ones and the minus poles to the black pole terminals.

We recommend urgently to use pole shoes for the secure connection of the loudspeakers. The connections should be secured as contact protection with heat shrinkable tube or insulating tape.

At devices with one loudspeaker output, the output relays A and B are connected for improvement of the output impedance. Therefore, the outputs A+B light up in the display.

Before you connect the loudspeakers to the Emitter, the following needs to be done without fail

- the Emitter have to be switched OFF
- the loudspeaker connecting cables are to be checked for short circuit

A short circuit is provable easily and is not included in our guarantee.

Headphones (option)

The headphone socket is installed on the front or back panel as required. The plug of the headphones can remain in this socket. The headphones output is switched ON only when the ON-OFF switch is positioned to the corresponding position or when this output is selected by the remote control. The switched headphones output is announced by two illuminated letters on the display board and a green LED on the main PCB board positioned at the right headphones relay.

Second output (option)

That connection pole terminals for the second outputs are named with B.

The function is announced by lighting up a yellow LED at every of the two output relays and by two illumination letters "B" on the display board.

Direct output (option)

To achieve better sound quality the Direct Output is connected without relay direct at the output transistors. But there are some differences to the behaviour of an Emitter with relay output:

- While switching ON and OFF, some small noises can occur.
- The impedance of the loudspeaker can't be checked no more before switching ON to short circuit, therefore please check the loudspeaker cables carefully before connecting.
- Since the loudspeaker output in the case of technical defects can be disconnected no more, the **protection circuit** locks the output **with a low impedance** in the case of fault.
- During **override** of the amplifier, it is immediately **disconnected completely from safety reasons**. Before switching ON again, the Emitter is to be put onto position "OFF" first.

The Operation of the ASR - Emitter

ON- OFF switch (left rotary knob)

Off - The Emitter is switched OFF. A green LED on the main PCB board at the right front lights up weakly and shows that the Emitter is correctly combined with the power unit. After a shutdown of the Emitter, wait at least 30 seconds, before you turn ON again.

Standby - Two auxiliary supply voltages (± 12 Volt) are switched ON in this position to supply the input relays and the display. As a result, records with switched OFF amplifier are possible. This switch position is the basic position for the remote control operation.

- 1 - First sensitiveness position. Control range of 01 to 61 dB. The amplifier should normally be operated in this position.
- 2 - Second sensitiveness position. Control range of 01 to 76 dB. In this position the level control can be adjusted 15 decibels higher and you have full power mode.

The second sensitiveness position should be turned ON only when the level in position 1 is not sufficient. In both positions the adjustment of the relay stepped level control in the amplifier is the same in case of the same volume display.

ON-OFF switch positions with optional equipment

If your Emitter is equipped with an second output or headphones, the ON-OFF switch has in total 8 instead of normally 4 positions. The front panel is engraved in accordance with the equipment.

Meaning of the engraving	A 1	Output A (standard), first sensitiveness position
	B 1	Second loudspeaker output, first sensitiveness position

KH	Headphones
A 2	Output A, second sensitiveness position
B 2	Second loudspeaker output, second sensitiveness position
A+B 1	Both loudspeaker outputs are switched ON at the first position.

Important ! When you use the remote controller, the position of the ON/OFF switch may not agree with the selected output in actual fact. The chosen output is announced by the lighting of illuminated letters on the display board up and LED's on the main PCB board.

Input selector switch (right rotary knob)

The input selector switch is set to **6 positions** in standard version. On the main PCB board, LED's in front of the corresponding input sockets and on the display board light up and shows which input was selected.

Volume control (middle rotary knob)

The middle knob operates an **rotary impulse generator**. This rotary impulse generator is required for the adjustment of the volume in normal operation and also for different adjusting. It can be moved by more than 360 degrees without assault.

For a complete throughput of the entire volume range, several turns are necessary at the rotary impulse generator. This allows you a very sensitive operation. The adjusted volume is shown in numbers from 01 - 76 in the display.

To avoid extreme volumes after switch ON, the volume can be adjusted in the "Standby" position only to a maximum of 49.

To achieve the best possible reproduction quality we recommend you to set the connected signal sources to maximum output level and to control the desired volume at the Emitter.

Monitor switch

In "Standby" mode the monitor switch is required for the switching to further adjusting modes.

In normal operation, the monitor switch turns ON the monitor relays. In this case you can control the rear tape signal of a tape that is connected to "Tape" sockets.

When the monitor relays are ON, a green illuminated letter "Monitor" on the display board and a green LED on the main PCB board lights up.

Remote control operation of the Emitter

You can operate the Emitter optionally at the device or by remote controller. If you want to operate the Emitter with the remote control, please turn the left rotary knob to the position "Standby".

If you press a remote control key the change is shown in the display.

The knobs remain on the position adjusted before.

You can take the function of the remote control keys from the table on the following page.

The Emitter operates with RC5 standard code, which is used in Europe by Philips and Grundig.

Programming the remote controller

The delivered remote controller is programmable and can operate up to 8 devices.

Towards the statement of the operating manual of the remote controller you are not allowed to activate the press button "reset" inside the battery chamber of the remote controller.

We recommend you to exchange the batteries one by one. When the remote controller is longer than 2 minutes without voltage the stored programs will be extinguished.

The remote controller is programmed with the operational signals for the Emitter in the position "AMP" of the device selector.

!! Please, store other devices into the remote controller only on other selector positions !!

For programming please place the source remote controller with its front to the back of your programmable remote controller and press the "Learn" button there. After this you should press the buttons that belong together till the Learn OK lamp lights up.

The prefixed numbers represent the remote control code (RC5 code, address 19)

16 VOLUME UP	(arrows upwards) increases the level
17 VOLUME DOWN	(arrows down) decreases the level
12 OFF	Switches into the Standby mode
63 POWER	Turns ON the amplifier as well as loudspeaker A when equipped with second output or earphone
28 CHANNEL +	Increases Channel level pre adjustment
29 CHANNEL -	Decreases Channel level pre adjustment
13 MUTE	level 15dB down and turn to position 1
14 STATUS	Sets up display again, maximum brightness, balance middle, volume 40 switch to loudspeaker output A position 1 and loosen turn On locking
18 TRACK +	Set up display at a short press, more brightly at longer pressing
19 TRACK -	Set up number field at short press, more darkly at longer pressing
01 (digit is one)	Selects input Phono
02 (digit is two)	Selects input Tape
03 (digit is three)	Selects input CD
04 (digit is four)	Selects input Tuner
05 (digit is five)	Selects input Dat
06 (digit is six)	Selects input Video
07 (digit is seven) option !	Selects input Aux 2 (optional)
08 (digit is eight) option !	Selects input Aux 3 (optional)
09 (digit is nine)	increases the switch ON position
00 (digit is zero)	decreases the switch ON position
30 PROG	Protect attitudes
31 ENT	Monitor press button
32 Press button "M1"	Second output (option)
33 Press button "M2"	Headphones (option)
27 « (double arrow to the left)	turns balance to the left
26 » (double arrow to the right)	turns balance to the right
53 PLAY	increases level 15 dB
50 TV/VCR	Changes between the outputs
54 STOP	switches OFF after level decrease
48 PAUSE	It switches between position 1 and 2
36 LOCK	chooses position 2 and 15 dB higher
55 RECORD	shows remote control code

The Emitter offers in series even further setting options to you

- | | |
|--|--|
| - Balance | level control of the output channels |
| - Input level adjust | Volume adjust for different inputs |
| - Display mode and
Display brightness | Adjustment of the fading function and the
Brightness of the display |
| - Energy saving circuit | Tuning the switching point between energy saving
and full power operation |

***Caution : Varied values are only stored if the Emitter is switched
"OFF" after you have changed the adjustments !***

Balance

Balance can be operated with the remote control panel by pressing the double arrow buttons. The corresponding area of illumination lights up after you have operated the buttons.

If you want to adjust balance directly at the device please switch the Emitter into the position "Standby". Then you press the monitor switch once. Then the two illuminated letters "Balance" are flashing.

The value of the balance shift is adjusted by turning the volume control at the front panel and is shown on the display by flashing of the letter at the corresponding channel.

Tuning the input level pre adjust

In order to avoid **volume difference** between different inputs the Emitter offers the possibility of the pre level adjust.

Please do not damp the signal source with the lowest level. Adjust the other inputs in the way that when you change the input no volume differences occur.

The **volume compensation** can be adjusted with the buttons Channel+ and Channel- at the remote control for the selected input. The level of attenuation is shown on the display.

To adjust the input level adjust without the remote control please turn the Emitter into the position "Standby". Then please press the monitor button so often until the illuminated letters designated with "Pegelaus" flashes. Now turn on the desired input and adjust the required value with the help of the volume control. This value is shown on the display.

The level adjust can also be placed onto the loudspeaker outputs. Therefore the corresponding Dip switch need to be switched (see page 13). This adjustment can only be done with the remote control when the Emitter is switched to the corresponding output.

Setting of the display mode and the display brightness

The display is adjusted by the factory that it switches Off 10 seconds after every operating activity. However, you can also adjust the Emitter in the way that the display complete or parts of it shine all time. The brightness can also be adjusted in accordance to your wishes.

The different setting options are represented by 2 numbers in the display.

The following settings are possible:

left number = mode

- 0 = Display switch Off completely after 10 seconds
- 1 = Switch displays LED's do not switch Off
- 2 = Indicator digits do not switch Off
- 3 = Switch displays and indicator digits do not switch Off
- 4 = Indication letters do not switch Off
- 5 = Switch displays and Indication areas do not switch Off
- 6 = Indicator digits and Indication letters do not switch Off
- 7 = Display does not switch Off completely

right number = brightness of the display

- 0 to 7 = brightness adjustable from dark to bright
at *changes* of the *volume* only the indicator digits light up
- 8 to F = brightness adjustable from dark to bright
at *changes* of the *volume* the complete display lights up

Please recognise that at the brightness values 0 and 8 of the right number the display can't be seen.

By short pressing the press buttons TRACK + or TRACK - on the remote control the display is activated. For tuning the display please, press you these buttons till the desired number appears on the display.

To adjust the display without remote control, please switch the Emitter into position "Stand-by". The display adjusting mode is turned on by pressing the monitor button three times and announced by flashing of the indicator digits. Then you can adjust the display with the volume control.

The default setting is "07". This means, that the maximum brightness is adjusted and the display switches Off after 10 seconds.

When the display is completely dark, you can adjust the display to maximum brightness by pressing the "Status" button at the remote control

Setting of the energy saving circuit

During listening with small volumes (mood music) and for the care of the Emitter during the warm up, the Emitter can be operated in an energy saving mode.

In this mode the power consumption is reduced by 60 %. In this case the operating voltage of the Emitter is halved. The smaller thermal development means lower wear for all components. The output power in the energy saving operation is reduced by approximately 70 %.

The switching point can be set individually to values between 01 and 51.

If the value is adjusted to 01, the Emitter does not switch into the energy saving mode.

Manufacturer adjustment of the switching point is made onto a middle value of 35.

If you would like to modify the switching point, the Emitter needs at first to be put into the position "Standby". The adjusting mode is adjusted by double pressing the monitor button and announced by the flashing of the "Energy" letter. The desired value is then adjusted with the volume control.

To avoid often changes between energy and normal mode during small changes of the volume the switching between the two modes is only made at volume changes of at least 6 dB.

The energy saving operation is blocked in position 2!

For the optimal care of the device, the Emitter is operated fundamentally in the first minute after switch ON in the energy saving mode.

Setting the configuration of the Emitter

The display board is mounted behind the front panel of your Emitter. This is connected with a ribbon cable to the supplementary board plugged onto the main PCB board. On this supplementary board there are two **8 pole Dip switches** for the **basic configuration**. For the adjustment the cover plate shall be removed. For this purpose please loosen the side screws between the cooling fins of the front and back panels.

DIP- switch left side

- | | |
|-------------|--|
| Switch 1 ON | Active equipment masters (controlling amplifier) |
| Switch 2 ON | Active equipment slaves (controlled amplifier) |
| Switch 3 ON | Active equipment, if no balance should be set up, normal mode no RC 5 address code 16 |
| Switch 4 ON | Active equipment, if no input selector should be set up at the slave, else only meridian codes |
| Switch 5 ON | Active equipment, announcing signals at slave, count in the case of master, normally monitor instead of tape input |
| Switch 6 ON | In the case of Overload or Offset, mains power supply immediately interrupting |
| Switch 7 ON | Do not switch Off in the case of short circuit |
| Switch 8 ON | Record selector is available |

DIP- switch right side

- | | |
|-------------|---|
| Switch 1 ON | second loudspeaker output is built in |
| Switch 2 ON | Headphones output is built in |
| Switch 3 ON | Both outputs are switched together, for Bi-wiring or double relay |
| Switch 4 ON | Level adjust onto loudspeaker instead of inputs for loudspeaker comparison "Stereo" |
| Switch 5 ON | Energy saving circuit is not built in |
| Switch 6 ON | Operation only in energy saving mode |
| Switch 7 ON | shows remote control signals |
| Switch 8 ON | it switches to monitor after switching from "OFF" to "STANDBY" |

That Dip switches are adjusted in accordance with equipment of your device in the factory. However, you can modify the settings in accordance with your wishes. To store the new settings please switch OFF the amplifier for at least five seconds.

Functional control LED's

After the connection of the voltage supply in position "Off" there is shining a green LED in front rightly for indication of the operation voltage (+12 V) and at the left on the supplementary board a red LED (+5 V). After switching onto "Standby" that operating voltage LED is becoming brighter and next to it a yellow LED (-12 V) illuminates.

In addition the LED's of the chosen input and the impedance control are shining.

After switching ON the Emitter, the main transformers are turned ON in the power unit by relays. This is shown by the illumination letters "Netz Ein". The further operating voltages are announced by 6 light-emitting diodes per channel.

Two yellow LED's each in front and at the back shows the supply of the output stage, two green ones near the block shaped plastic foil capacitor shows the voltage of the driver stage. Two red ones more in the middle shows the operating voltage of the input stage.

Please, control during troubles at first the luminescence of all of the LED's. If a voltage should be missing, your Emitter can not function correctly. You can take a survey of the LED's and the function from the drawing on page 16.

The extensive comfort and safety functions of the Emitter are only possible through the control with an micro controller. By replacement of built-in programme storage (EPROM, 28 pole IC with date label), software can be updated at any time.

The protection circuits

In order to prevent damages to the amplifier or the connected loudspeakers the Emitter is equipped with several protection circuits. Possible **troubles** are announced by **flashing fault indicators**.

In the case of too high temperature, short circuit or repeated problems through Overload, the device interrupts completely and the voltage supply is switched Off.

If the Emitter has switched itself OFF because of a trouble and does not turn on again, please press the "Status" key at the remote control key or position the left knob for several seconds to position "OFF".

1. Impedance control for the determination of a short circuit before switch ON

In the position "Standby" and after switching ON the Emitter, the DC resistance of the connected loudspeakers is checked during switch ON time delay.

The resistance of the loudspeaker connected at the output A is announced with three LED's.

A green LED lights up in the case of a resistance below 6 ohms, a yellow LED lights up in addition at a resistance lower than 3 ohms, a red LED beside it shows a DC resistance below 1,5 ohms.

At output B, a resistance lower than 1,5 ohms is shown only with a red LED. This control circuit is not installed at devices with direct output that has no output relays.

In the case of an impedance lower than 1.5 ohm the red illuminated letter of the corresponding channel designated with "**Kurzschluss**" flashes and switch ON of the Emitter is blocked.

In this case you should disconnect the loudspeaker cables from the Emitter and observe whether the LED's go out. If these are still shining, too high voltage (flash, Electrostatic voltages) at the loudspeaker connections has destroyed the safety security IC.

If some of these LED's should flicker, low voltages that disturb the operation of this circuit were induced by sound in the loudspeaker. A different display in the right and left channel can result from small differences of the impedance of the loudspeakers.

2. Distortion and overload disconnection, offset control

When you play louder than possible, every amplifier generates **distortions**. In this case the required output voltage is larger than the operating voltage. The distortions have very high levels of high frequencies. This means **danger** for the **tweeters** and **midrange** speakers of you loudspeakers.

This dangerous distortions are observed with a special circuit in the Emitter. When there are too much distortions, the respective channel is disconnected after a short time by the protection circuit.

In this case, on the rear part of the main PCB board a red LED designated with Overload lights up, and the red illumination letters "**Overload**" and "**Offset**" of the corresponding channel flash.

If the amplifier output should not be DC-free (Offset), the same illuminated letters flash and a yellow LED which is designated on the motherboard with "Offset" lights up.

The duration of the switch Off time delay is variable with one two switch Dip switch per channel

Switch 1	OFF	long switch-off time	ON	Switch-off time short of
Switch 2	OFF	no influence	ON	No disconnection at distortion or short-circuit

If the protection circuit is switched OFF, the amplifier can no more recognise a short circuit of the loudspeaker outputs during operation! **!! WARNING !!** For this reason, this switch position should only be used in exception. A guarantee can not be undertaken at switched Off protection circuit.

3. Display of too high temperature

At a temperature higher than 55 degrees Celsius on the cooling elements, the amplifier is disconnected completely and one blocked against switch ON again.

The red "UEBERTEMP" illuminated letter of the overheated channel flashes.

The Emitter can be turned ON again only after cooling down completely.

Troubleshooting

Malfunctions in the programme run - Reset

During malfunctions in the programme run, the programme can be restarted by switching the left rotary knob into "Off" position (reset).

No LED lights up after switch-on – changing the fuse

Please check, while the Emitter turned "OFF" whether the green and red Operation LED's inside the Emitter are shining (see drawing page 16), and if the red LED in the power unit light up.

If these do not light up, check at first whether the power unit is connected correctly with the supply voltage and if the mains cable is locked correctly in the socket at the power unit.

Before the inspection you have to disconnect the Emitter and then pull the power plug out of the wall socket. After this please check the fuse that is inserted into the AC power socket on the back side of the power unit below. A defective fuse can be recognised by the melted string in the vitreous body and should be replaced by a new fuse slow 5 amperes.

A further fuse 0.5 ampere slow is positioned in the interior of the power unit near the standby transformer in a upright standing socket.

No Reaction of the Emitter onto remote control signals

Please at first test whether the function Led at the remote control is flashing. If not please exchange the batteries. Otherwise switch the Emitter ON and OFF to restart the program.

Cracks of the case while warming up

By the different thermal expansion of the aluminium that is used for the cooling elements and of the acrylic body scratching noises can possibly occur in the heating and cooling phase of the amplifier. You can eliminate this by unscrewing the holding bolts of the front and back panels.

The lock from above onto the main PCB board

The signal is led directly over the Input- and monitor relay to the relay stepped level control circuit. The amplifier consists from an FET- input amplifier IC, that controls a MOS- FET driver stage. This drives the MOS-FET output stage. The outputs for the loudspeakers or the headphones are switched by relays. Switch-ON of the two output relays of the output A is shown with a green LED, the output B with a yellow LED, the headphones output with a green LED on the right headphones output relay. The device is controlled by a micro controller. It is positioned in the middle of front of the main PCB board. The control programme is inside the EPROM (programmable memory) mounted right beside. In position "OFF" a green and a red led shows that the Emitter is supplied with voltage. In Standby mode the input selector LED's and the protection circuits are supplied with voltage, the negative voltage of MINUS 10 V is shown by a yellow LED. In positions 1, 2 and the further positions, the transformers in the power unit are turned ON to supply the amplifier. The existence of the 6 different necessary operating voltages is shown by different coloured LED's, green for the drive voltage (± 76 Volt), yellow for output stage supply (± 60 Volt), red for the voltage amplifier driving voltage and offset regulation (± 16 Volt).

Cleaning

For cleaning our sets we recommend you to use the Anti-Static Plastic Cleaner and the Cleaning Cloth contained in the cleaning set.

We use these ourselves and have made experiences best with it. The use of unsuitable materials may damage the surface of the plastic material.

The added Care Cloth is washable, fluff free and contains no fraying which would be able to attack the surface (Even in tissues, threads which can damage the surface are contained).

The rotary knobs are sealed and may not be treated with chemicals. The knobs should be wiped with a tender cloth if necessary.

If dirt sticks on plastics for a long time, this dirt may form a kind of film that isn't easy to remove.

Therefore, regular care is necessary!

Use of the antistatic plastic cleaner : Spray the liquid directly onto the face of the subject, and wipe it with a especially soft care cloth. One can give also the liquid directly onto the care cloth and clean with the impregnated cloth.

Elimination of scratches

Your device may be scratched through strong wiping or other external influences. In this case you can polish this away with ACRYL-POLIERPASTE. After application, a subsequent treatment is advisable with the enclosed ANTISTATIC KUNSTSTOFFREINIGER.

For a harm through incorrect cleaning we can undertake no guarantee.

Repair

Before you send us the device for repair, we ask you to inform us by telling us the device number.

If we should not be able help you by telephone, please send the Emitter freight freely to us. Please pack the Emitter into film before you pack the device into a carton with padding. Wrappings can ordered by us if necessary against extra payment.

We hope that these information are useful to you for the operation of your Emitter. We wish you much fun and music pleasure with the **ASR- Emitter**.

Yours sincerely

Your A S R - team

Technical data

The Emitter I and II are main amplifiers with level control and input selector. The stepped relay switch has 75 dB controlling volume and remote control operation, 6 high level inputs are switched with relays, one input has allows rear tape control.

Input circuit with FET- inputs and separate voltage supply, output stage with high internal feedback. The complete construction is made with complementary MOS-FET transistors. Temperature dependent regulation of the quiescent current 400 mA (600 mA at EM II), high operation in the Class Ampere- field, DC- amplification and offset regulation series.

The motherboard is double sided with 2x 120 μ copper plumbed tin, the signal connection on the motherboard are completely located in shielding areas, separate grounding at every side for signal connection and voltage supply, complete soldering is made with silver soldering, no condensers in the signal path, the supply voltage buffering is made with fast electrolyte and plastic foil capacitors.

Sine-wave power 20-20.000 Hz, 0.1% distortions, both channels operation

Emitter I HD 8 Ohm 2x160 Watt, 4 ohms 2x290 Watt, 2 ohms 2x520 Watt, 1 ohm 2x 750 Watt
Emitter II HD 8 Ohm 2x280 Watt, 4 ohms 2x500 Watt, 2 ohms 2x900 Watt, 1 ohm 2x1400 Watt
Maximum impulse power values are approximately the rated output multiplies by 1,5

Distortions from 50 milliwatt to -1db under rated output with 1 kHz <0.02, of 20-20.000 Hz <0.1%

Signal-to-noise ratios at 1 Watt / 8 ohms,> 90 dB

Frequency response - 3db of 0.1 hertz to 500 kHz

Input impedance 10 kilo Ohm

Input sensitivity

for 34,6 Volt AC output voltage (150 Watt to 8 ohms), position 1 = 2 Volt, position 2 = 0.4 Volt

Separate supply for the input stage ± 18 Volt/ 86.000 uF (152.000 μ F EM II),
the voltage amplifier stage with ± 76 Volt has 40.000 uF (± 96 Volt/ 60.000 μ F EM II),
and the current output stage ± 60 Volt is equipped with 400.000 μ f (+78 Volt/ 600.000 μ F EM II).

The power units are separated with 2x 700 VOLT-AMPERE (4x 700 VOLT-AMPERES) rated output, more than each 1000 VOLT-AMPERES of pulse power ever Philbert- coat cut transformer, separate transformers and rectifiers for the positive and negative voltages (2 transformers in separate cases per channel at EM II). For supply of ± 15 Volt to the input stage and to the controls voltage, a further transformer of 72 VOLT-AMPERES is installed.

The switch ON is made with a starting current limit via 5 relays per power unit. The case is produced of sheet metal for better shielding and equipped with an acrylic glass front panel.

Dimensions and weights (W x L x H)

Emitter I : 420 x 410 x 180 mm, amplifier 18 kg, PM- power unit 430 x 320 x 150 mm, 32 kg

Emitter II: 570 x 440 x 230 mm, amplifier 42 kg, 2x PM- power unit 430x320x150 mm each 32 kg

technical improvements reserved

Mounting and the setting of the phono board

That ASR- phono board is a complete Phono equaliser preamplifier for the connection of MM- or MC- systems to the ASR Emitter I and II plus and HD.

If you should want to plug in the phono board, remove the cover plate after dissolution of the fixing bolts (in the cooling elements) of the front panel and of back panel of the Emitter.

They put away the plug in wires at the two double row 10 pole socket connectors. Inserted the phono board. Please pay attention to the correct fit to avoid damages.

All pins have to be plugged into a hole in a socket!

The phonograph is to be connected at the two plugs arranged in the middle, characterised with Phono. The phonograph ground can be put to one of the two black output connector terminals.

With the two DIP switches placed in the middle of the phono board you can adjust the board to your phono cartridge. With the switches 1 and 2 the input impedance is adjusted, amplification is chosen at the switches 3 to 6.

Consider that the two Dip switches are mounted in 180 degree position !

ON is the switching position oriented to the middle!

The phono board has not been designed for extremely low output MC- systems!

Attitude of input impedance

1	2		Input impedance
-	-	47 kΩ	for MM- pick-up
-	ON	100 Ω	Medium OUTPUT MC- systems (Denon, Yamaha)
ON	-	22 Ω	Low output MC- systems (Ortofon MC 200)
ON	ON	18 Ω	only limited operation with very low MC's!

Setting of the amplification

Amplification can be made higher by tuning the switches 3, 4, 5, 6 to ON.

The maximum amplification becomes achieved when switch 3 is ON.

3	4	5	6		
-	-	-	-		Minimum amplification for MM
-	-	-	ON	+ 9 dB	
-	-	ON	-	+ 14 dB	
-	ON	-	-	+ 20 dB	MC low output like Denon, Yamaha
ON	-	-	-	+ 26 dB	MC very low and Ortofon MC 200
ON	ON	ON	ON	+ 34 dB	MC has extreme low output

All switches usually ought to be adjusted left and right identically. Only if level differences of the pickup needs to become compensated, different adjustment is allowed.

Amplification should be set for improvement in the signal-to-noise ratios as low as possible. The highest volume desired for sound monitoring should be achieved at maximum position of the volume control in position 2. Every further increase of the amplification of the phono board only means unnecessarily lower signal-to-noise ratio.

With MC- pickups that is related principally near to the value that is physically possible !