

TM

SCHERTLER®
ACOUSTIC FIDELITY

CS THUS
ART48 - L/RMAST

USER MANUAL
Assembling instruction inside

WARNINGS

PRECAUTIONS

WARNINGS

Read carefully this manual and follow these precautions before operating the device

Keep this manual for possible future needs

Pay attention not to pour liquids onto the device and do not operate in conditions of excessive humidity

Do not install the device close to sources of excessive heat, do not expose it to direct solar radiation and do not position it without protection in a dusty environment

Be sure that the main voltage does not exceed the value indicated on the back panel

Do not use the device if the main cable or the plug aren't in a perfect condition (if necessary, replace it)

If the main cable has to be replaced, the operation must be carried out by qualified personnel. Replace the cable exclusively with one that is an exact substitute

In order to avoid interference, do not install the device close to power transformers, TV sets, RF transmitters, electric motors or any source of electric energy

Do not point microphones against speakers: this could generate annoying whistles (Larsen effect) that cause damage

In order to avoid unpleasant and costly inconveniences, use only original connecting cables

To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC socket

When cleaning, do not use solvents (e.g. acetone or alcohol). These could damage the external finishing and the serigraphy

Do not attempt to service this product. In case of malfunction of any part of the system call the nearest technical assistance centre or a specialized technical centre

For good ventilation, the heat sink should never be covered or obstructed by blankets, sofas or similar furniture. Be sure also to leave sufficient clearance between the heat sink and any other surface

No source of flames, e.g. candles, should be placed on or near the device

The device should not be exposed to water, even in small amounts. No object containing liquids should be placed on or near the device

The device should only be connected to a mains socket outlet equipped with protection ground system

When the device is installed, be sure the mains socket and the plug of the mains cable are easily accessible

INTRODUCTION

Some words from the electronic designer....

I'm proud you purchased the Arthur format48, a groundbreaking new audio product. What you see at first glance is a modular mixing console, that offers the possibility to build your own mixing tool with a flexibility the market never has seen before. There are 8 different units you can combine in a few minutes in whatever sequence or number.

However, the heart of this mixer, the electronic, might be even more outstanding. Never has been seen a mixer on the market with an electronic circuitry free of negative feedback (NFB) from input to output. Also all Filters and summing amps, for many electronic designers not imaginable without NFB, are released in this high-speed "straight ahead" design without slowing down back loops, resulting in an ultra fast response and natural, unflatten attack, not achievable with NFB-circuits.

Consequently, all circuits are purely made with single components and without integrated circuits, in discrete Class A, pure high-voltage DC-amps (there is not one capacity in the signal path), offering 30dB headroom, low noise and unveiled stability, warmth and transparence.

Although the Arthur formate48 doesn't offer all the features of a big studio console (it is not made for that), its sound might outperform many of the important mixing desks, or said in a different way, it will be hard to find a better sounding mixer than the Arthur.

For recording or Live, small performances or big bands, amateurs or professionals, many will find the perfect tool thanks to its great sound and unbeaten flexibility. You need a mic input or an instrument input more to connect your friend's guitar, just order it and mount it to your existing Arthur ...

I wish you fun and recreation while playing music through your modular mixer Arthur.

Stephan Schertler
President, electronic designer

CONNECTING THE UNITS

You can connect all the single input and output channel units in any sequence you like. However, before actually starting to connect the units, it's useful to first decide on their sequence from left to right.

In most cases, you will have the inputs on the left, following through to the outputs on the right. If you have chosen to use the AUX master unit and the L/R master unit, it makes sense to put the AUX master unit to the right of the L/R master unit. This way the AUX faders will go from left to right numerically, i.e. AUX 1 on the L/R master unit, followed by AUX 2 and AUX 3 on the AUX master unit. However, you have total freedom to choose your own personal sequence - there are no electrical or mechanical restrictions or contraindications.

Let's start by connecting the single units from left to right (Fig.1). Taking a mic unit for example, we must first fix the supplied top and bottom connecting rods to this unit.

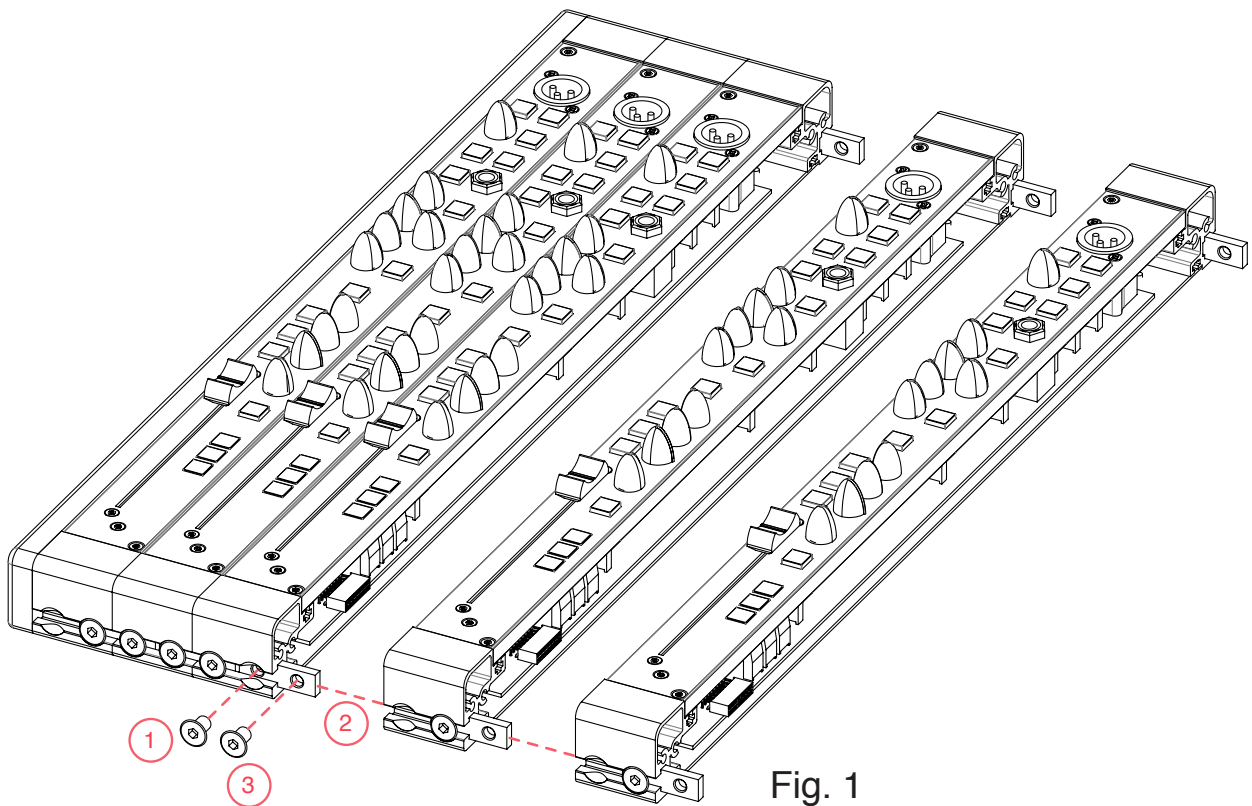


Fig. 1

- Loosen the screws attached (1) to each rod and insert the rod into the right side of the appropriate slot (2) on both the top and bottom of the unit.

- Using the supplied hex key, fix the first screw in place on each rod (3).

Now take the next unit, for example another mic unit, and mount it to right side of the first unit on which you just fixed the connecting rod.

- Gently press both units together, so that all the connectors slot into one another without being squashed.

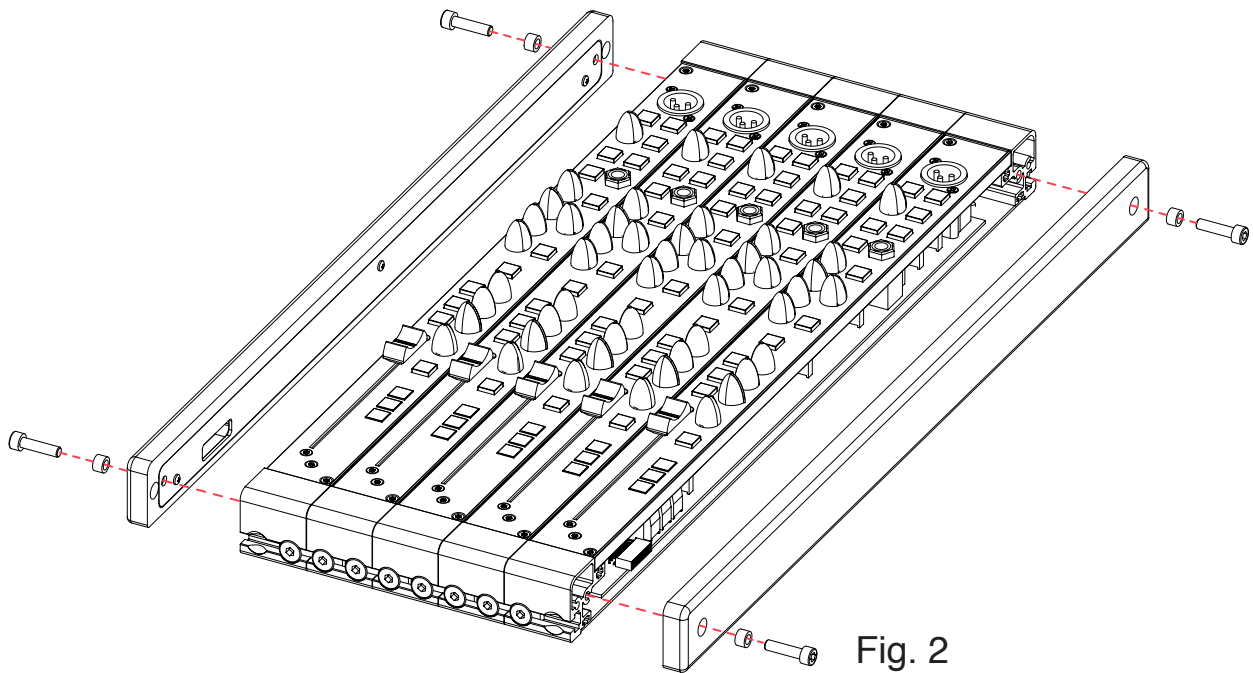
- Now tighten the second screw on the connecting rod, so that both units are firmly joined together.

You can now go ahead and connect the remaining units in the same way. (The two connecting rods belonging to the last unit will be left over. Keep these in case any replacements are needed.)

CONNECTING THE UNITS

Now it just remains for the side panels to be fitted to the mixer (Fig.2).

Fix these panels using the supplied screws. (Note: These self-cutting screws need some force in order to be turned. Make sure you have inserted the screws straight into the hole during the first few turns.



If buying additional units, it's easier to split the mixer between two existing units and insert the new unit in between, rather than removing one of the side panels. However, if your new unit needs to be added to the far left or right side of the mixer, as with the spring unit for example, then you will obviously have to remove the relevant panel in order to accommodate the new unit.

There is different side models available (check www.schertler.com for details): basic, metal, wood and wood with armrest...

All the models can be mounted following the same procedure.

STARTING THE MIXING CONSOLE

Ground lift

In most cases, whether in live situations or in a recording studio, the mixing console acts as the central component of all the various audio devices and, as such, it will be the only link in the audio chain that is connected with the ground in order to avoid noisy ground loops.

This ground configuration is provided on both the PS-8 and PS-16 power supplies. Should you want to disconnect the ground from the mixer, for any reason, you must then use the PST-48 power supply. This gives you the option, via a ground lift switch, of operating either with the ground connected or disconnected.

Starting your Arthur Format48 mixing console

Plug the power supply's connection cable into the DC IN connector on the L/R master unit. There is no on/off switch. When your Arthur is not in use, this power supply should be disconnected. The PST-48 can however be switched on and off using the on/off switch on the power supply itself.

Before switching on the mixer, make sure that the master faders are down, or better still, the master section on/off switch is in the "off position". This will avoid power-on "pops" from any loudspeakers that may have been left on by accident.

In any case, a mixer should always be turned on before any of the following devices in the audio chain.

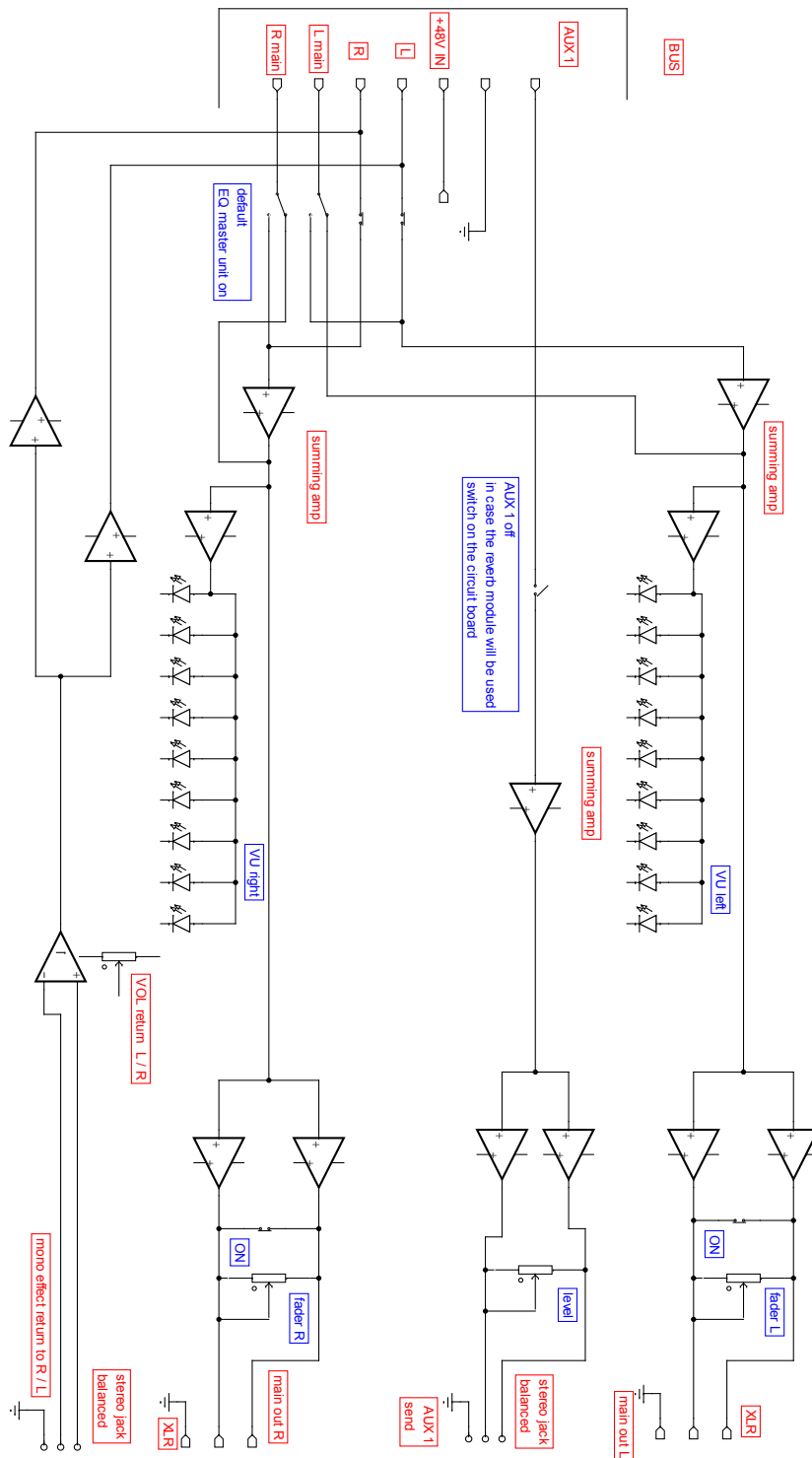
! Once the mixer is powered up, the audio electronics' DC regulators need about 2 minutes to balance all the DC levels in the circuitry. You can start using the mixer after just 10 seconds, but the slightly unbalanced DC levels will reduce the dynamic and you might hear a "click noise" when pressing some of the buttons, or a slight "crackle" when operating the potentiometer knobs! These effects will disappear after the 2 minutes !

At all times, and particularly before important recordings, the mixer should be warmed up and run for about half an hour before the serious work begins.

ART48-LRMAST

Arthur's L/R master unit is a very fine, high-end, CLASS-A output amp that offers the basic features you might use in a smaller mixer configuration. Adding the optional AUX master unit provides all routings plus further output functions. Therefore, the complete master section really consists of the L/R master unit and the AUX master unit.

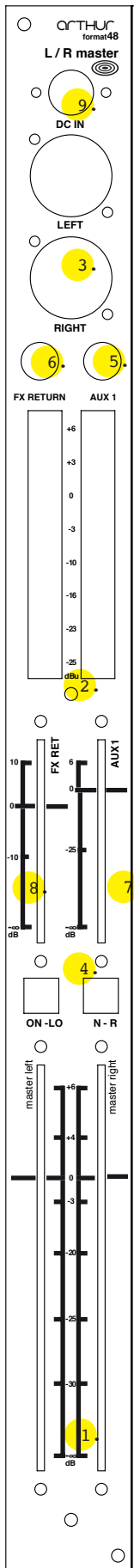
Let's take a look at the L/R master unit, following the signal flow from the master faders to the output.



blockdiagram
modular mixer 2.2015
main master
SCHERTLER

all pots and switches in blue color
all plugs and bus in red color

ART48-LRMAST



Depending on their position, the two L and R master faders (1.) attenuate or amplify the L and R signals from all the input units. The resulting signals can be seen on the L and R VU meters (2.). These show the amount of signal you will be sending to the XLR output connectors (LEFT OUT and RIGHT OUT (3.)) and subsequently to a recorder or a PA system etc. Please be aware that the Arthur features a headroom of 30 dB, so its electronics and output amps are rarely likely to clip. The purpose of the VU meters is therefore to monitor the level of signal flow to successive audio devices.

The ON/OFF buttons connect the faders with the output amps. These are similar to the MUTE buttons used on other mixers, but their functionality is reversed. When the ON/OFF buttons are depressed, the L and/or R outputs are connected (whereas a MUTE button disconnects the output in its depressed position).

These ON/OFF buttons (4.) can be useful in a live situation, for example, to instantly disconnect “the stage from the PA” without changing the position of the master faders.

As well as controlling the main L and R outputs, the L /R master unit also has a single AUX (5.) send and FX return (6.), enabling you to connect a reverb unit of your choice. This is very useful in a small mixer configuration combined with a small PA where, in most cases, reverb is required but is sufficient in a single loop mono setup. (With larger mixers, you will probably connect the reverb or effects unit to an additional stereo input unit, where frequency corrections and routings – such as “reverb to monitors” - can be easily set. This isn’t possible in a basic “all through one L / R master unit” configuration.)

The reverb unit’s input will be connected to the AUX 1 OUT phone plug and its output to the FX RET (effect return) phone plug. This way you can control the amount of reverb for every input unit (for example your mic units) with the AUX 1 knob (7.). This has to be set to “post-fade” (orange light on the post/pre button), making the reverb amount dependent on the channel fader position.

The FX RET fader (8.) lets you control the amount of reverb you will mix in (in the same proportion) to the Left and Right signals on the L/R master output.

Please note that the AUX 1 OUT and FX RET phone plugs are designed to receive and send balanced signals, using space-saving stereo phone plugs. The tip connects as usual to the hot (+) signal, the ring to the cold (-) and the sleeve to the ground. A further advantage of these phone plugs is that you can also connect an unbalanced music signal using a simple mono jack.

Important: If you have purchased, or are intending to purchase the original Arthur spring reverb unit, which fits like any other Arthur unit, the AUX 1 section on the L/R master unit must be deactivated. This is because the reverb unit will sum all the signals coming from the AUX 1 BUS.

The L/R master unit features a switch (positioned on the circuit board) that deactivates the summing function of its AUX 1 section. Change this switch from its default setting (AUX 1 on) to AUX 1 off. In this position, the AUX 1 on the L/R master unit will stop running and the reverb unit will “take over” the AUX 1 signals from all channels. In this situation, you can however pick up the summed AUX 1 signal from the reverb unit for external use.

At the top of the L/R master unit is the DC IN connector (9.). This is where the mixer’s power supply is connected. From this 48 Volt DC input, all other units attached to the L/R master unit will also be served via the power supply. For more information on the available power supplies, maximum unit numbers etc, please consult the chapter titled Power Supply and Starting the Mixing Console.

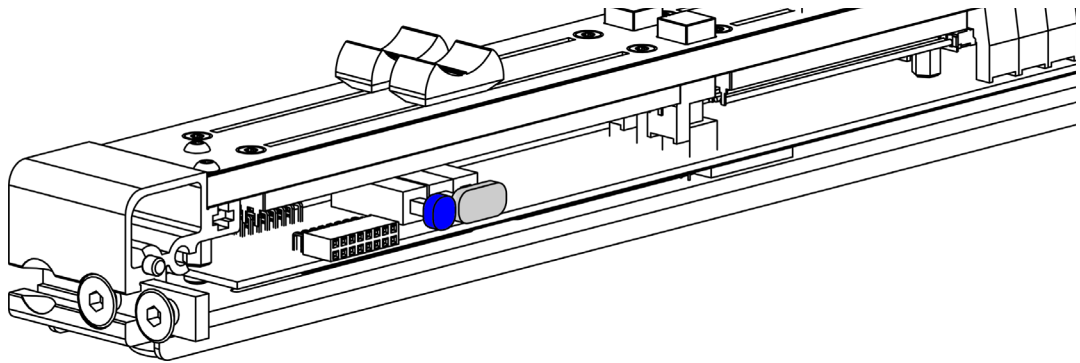
ART48-LRMAST

Combining L/R master units

A standard mixer used for live and recording applications only needs one master L / R for connection to a PA system, or a recording device etc. There are however numerous situations in which more than one L / R output is not only useful, but a must.

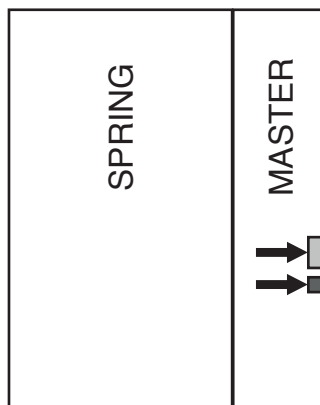
The Arthur concept, which offers total flexibility, enables the combination of a quasi-infinite number of outputs. In a hotel audio installation for example, a microphone and a stereo input might be sufficient for inputting the sound source, but more outputs would be needed for it to be independently controllable in different areas such as the bar, restaurant or hotel lobby. Another example could be a "splitter mixer" for audio demonstration, with only one stereo input unit (CD player) and numerous L / R master units for sending the music signal to different loudspeakers for A/B comparison. Even on a standard mixer, a second master output could be helpful for controlling a subsidiary part of the PA system, or side fills for example.

The mixer's structure only allows for one summing amp, which will sum all L and R signals coming from the BUS. The L/R master unit features a white switch - positioned on the circuit board - to deactivate that summing function. If you use more than one L / R master unit, only one unit should be left as per its default setting (i.e. with summing on); all the other L/R Master units must have both blue and white switch depressed.

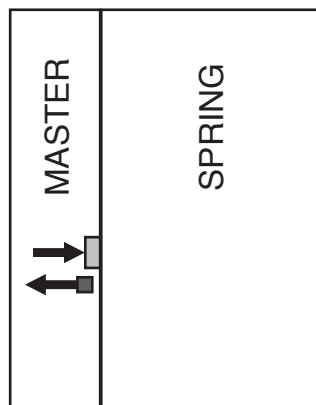


Note: If you want to have a Schertler Arthur 48 Spring Unit on the right side of the Master, for example as the final unit on the right of the mixer - as many users prefer - you must first deactivate the summing amp on the L/R Master. This is done by depressing the respective blue button on the L/R Master circuit board.

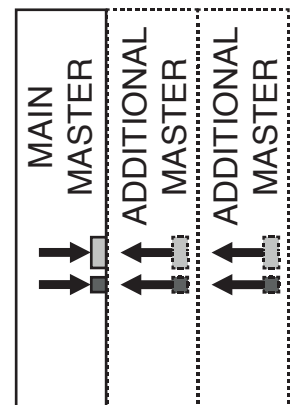
Spring on the left side of the Master



Spring on the right side of the Master



Multiple Masters setup



→ released
← depressed

TECHNICAL SPECS

L/R balanced XLR outputs

Output impedance	130 ohm
Maximum output level	+27 dBu (@1kHz; THD <0.5%)
Frequency response (-3dB)	16 Hz - 125 kHz
Distortion (THD+N; @1kHz)	0.13% (2nd harmonic)
-30dBu input level	0.06% (3rd harmonic)
0dBu output level	0.015% (4th harmonic)
with MIC IN module	0.008% (5th harmonic)

AUX 1 balanced 1/4" jack output

Output impedance	180 ohm
Maximum output level	+26 dBu (@1kHz; THD <0.5%)
Maximum Gain	+13 dB
Frequency response (-3dB)	16 Hz - 125 kHz

FX Return balanced 1/4" jack output

Input impedance	20 kohm
Maximum input level	+22 dBu (@1kHz unity Gain, THD <0.5%)
Maximum Gain	+10 dB
Frequency response (-3dB)	25 Hz - 100 kHz
Distortion (THD+N; @1kHz)	0.09% (@unity Gain)
Power consumption	130 mA
Size & Weight	36x58x475 mm. ; 0.5 Kg

IMPORTANT SAFETY INSTRUCTIONS



THE LIGHTNING FLASH WITH ARROWHEAD SYMBOL, WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT ENCLOSURE THAT MAY BE OF A SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE PRODUCT.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK
DO NOT EXPOSE THE APPLIANCE TO RAIN OR HUMIDITY

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



ALL SCHERTLER® PRODUCTS ARE COVERED BY A LIMITED THREE-YEAR WARRANTY (FROM THE DATE OF PURCHASE) AGAINST MANUFACTURES DEFECTS. DETAILS CAN BE OBTAINED FROM YOUR LOCAL DEALER/REPRESENTATIVE. SCHERTLER SA STRONGLY BELIEVES IN “COMMON SENSE” AND THUS, MISUSE OF OUR PRODUCTS ARE NOT COVERED UNDER RIGHTS OBTAINED THROUGH OUR WARRANTY POLICY OR THAT OF INTERNATIONALLY RECOGNIZED TERMS AND CONDITIONS.

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