

TM

SCHERTLER®
ACOUSTIC FIDELITY

ARTHUS

ART48 - MICIN/MIC-ULN

USER MANUAL
Assembling instruction on ART48-L/Rmast manual

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

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.

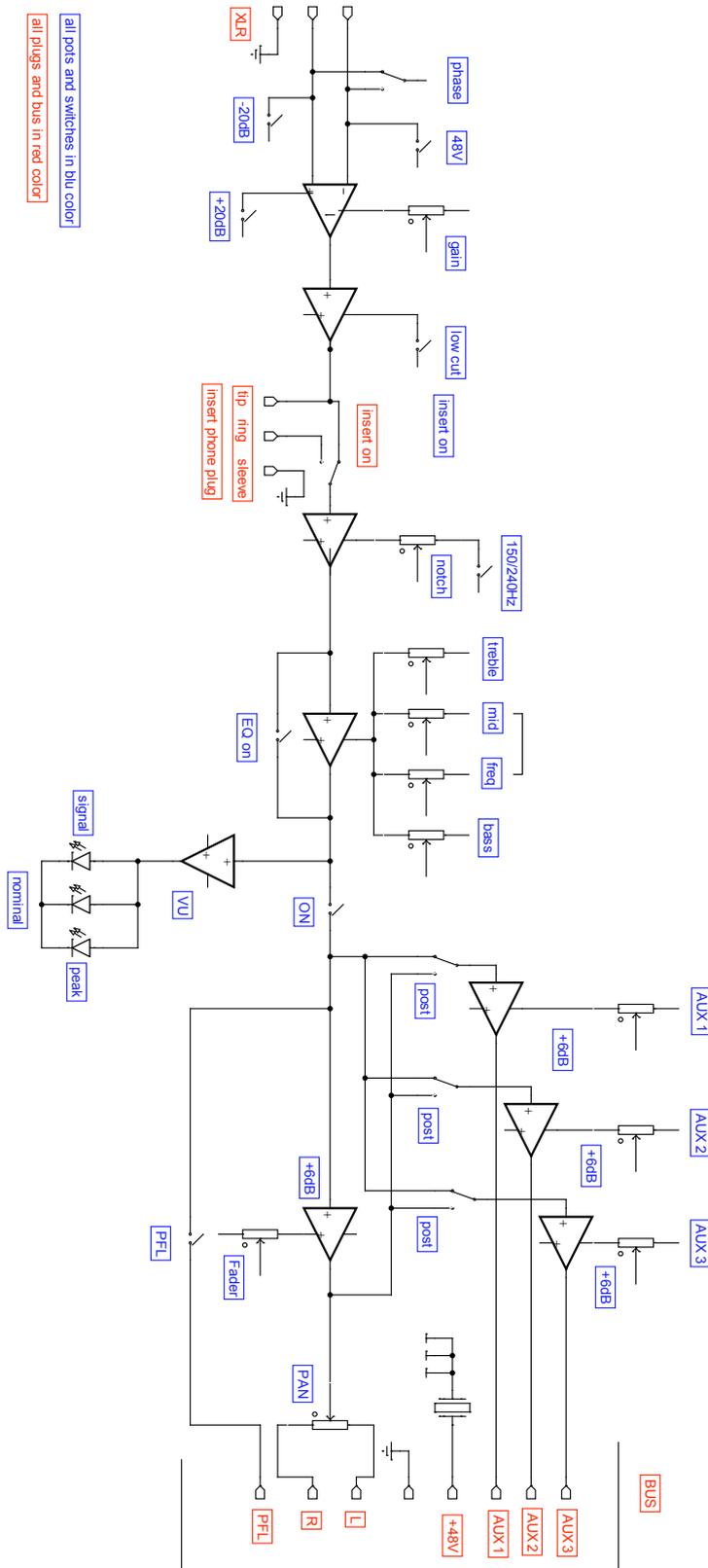


ART48-MICIN/MIC-ULN

The Arthur Format48 mic input unit is a very fine, high-end microphone preamplifier that should make a big difference to what you may have been used to hearing up to now. While the basic features of the mic unit are similar to those on other mixers, it also has some more innovative features, so let's take a tour of the unit.

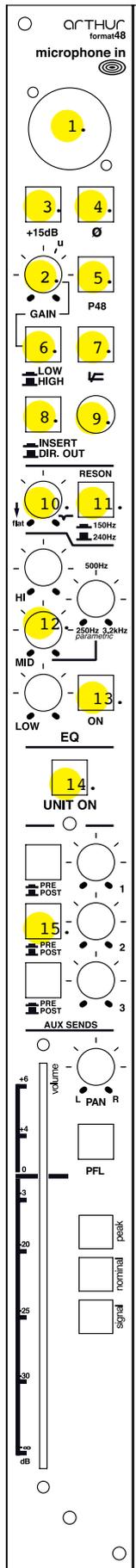
SCHERTLER

blockdiagram
modular mixer 2.2015
MIC CHANNEL



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

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The XLR input (labeled MIC IN), positioned at the top of the unit, can receive balanced signals from -63 dBu to +18 dBu. This is a range of 81 dB, which therefore permits you to connect any audio signal to the mic unit.

Adjusting the GAIN knob (2.) affects the amplification rate of the input amplifier, amplifying a weak signal to a nominal level of 0dBV, or attenuating a stronger signal, so that a nominal signal of 0dB is always present at the output of the mic input amp.

On the VU level meters, positioned at the side of the channel fader, you can “read” the amount of gain set. Turn up the gain to a point where the red overload occasionally shows. But don’t worry too much about this. Thanks to the amount of headroom from input to output on Arthur, even strong overloads can be absorbed by the mixer’s electronics without resulting in distortion.

Two buttons will help you to control the gain: the +15dB button (3.) and LOW-HIGH (gain) button (6.).

The following table shows the functionality of the GAIN and the additional +15dB and LOW-HIGH buttons:

Gain knob	+15 dB button	LOW-HIGH button	Gain (dB)
max setting	off (white light)	low (white light)	45 dB
min setting	off (white light)	low (white light)	18 dB
max setting	on (green light)	low (white light)	60 dB
max setting	-----	high (green light)	20 dB
60%setting U	-----	high (green light)	0dB unity gain
min setting	-----	high (green light)	-18 dB

The +15dB button is automatically excluded when the LOW-HIGH button is pressed. This is because it obviously doesn’t make sense to amplify and attenuate a signal at the same time. For most stage and recording situations, using dynamic and condenser mics, you might not need the extra 15dB. But this additional gain could be helpful for ribbon mics and mics that are positioned at a distance, particularly during recordings.

Depressing the LOW-HIGH button to “high position” (green light) and setting the Gain on “U” means that the mic preamp will neither amplify nor attenuate the signal. This mode is called “unity gain” and is the correct setting for nominal 0 dB signals, or line signals that you get from professional devices like limiters, effect units or recorders.

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The PHASE button (4.), labeled \emptyset , swaps the “hot” and “cold” aspects of the input signal, inverting the signal’s phase 180°. This can be helpful if, for example, two microphones are positioned at a distance, or reverse-faced (i.e. bottom and top miking for snare drum reproduction). Depressing the \emptyset button on one of the mics means that the reverse-faced mic will get “in phase”, or a distantly placed mic (for certain frequencies at least), will become “better” in phase with a second mic. However, the \emptyset button position is subjective and the results really need to be evaluated by listening.

Depressing the P48 button (5.) (red light) delivers 48V of phantom power to the microphone, which, in most cases will be a condenser mic or an active ribbon mic. A dynamic mic cannot usually “see” phantom power (as its name suggests), but passive ribbon mics could be permanently damaged by it.

Only use this button for mics that you know for certain need phantom power in order to work. Also be aware that the internal circuitry raises the 48V slowly, in order to avoid loud “pops” and protect the microphones. Therefore, about 10 seconds are needed before the condenser mic will work fully.

The low cut button (7.), labeled f , limits low frequencies at 100Hz/second order, cutting out unwanted low frequencies from “boomy” signals. This filter can also be helpful in shaping signals from smaller instruments (violin, mandolin etc).

The unit’s insert works in a similar way to that on other mixers, but offers some extra possibilities due to an additional bypass switch.

If the INSERT DIRECTOUT (8.) button is not depressed (i.e. off, white light), the signal will not be interrupted by the insertion of a phone jack into the Insert connector (9.). In this instance, the insert connection works as a sleeve out or “dry line out post input amp”. You can connect a simple mono phone jack or a stereo phone jack to the insert. The unbalanced line signal will be transmitted through the “tip” of the phone jack.

If the INSERT DIRECTOUT button is depressed (i.e. on, red light), the signal in the mixer will be interrupted and the insert will work in the usual way: By connecting a mono jack, you will get the simple output line signal on the “tip”. By connecting a standard stereo phone jack, you get the (output) signal from the “tip” (send) and the return signal will be connected to the mixer through the “ring” (return) of the jack.

Resonance filter

The resonance filter is a kind of notch filter, but one that is gradually adjustable over its attenuation level. If the filter is set to the “flat” position during recording it will be totally bypassed, thus having no effect on the incoming signal.

This filter is designed to avoid, or at least attenuate, feedback on acoustic instruments that are mic’d up in live situations using pickups such as the legendary SCHERTLER DYN series. A Double Bass or ‘Cello might get in resonance at ca. 150 Hz, whereas guitars and similar musical instruments will do so at ca. 240 Hz. The Q is very high, cutting out a very narrow band at the respective frequency.

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Using the 150Hz-240Hz button lets you select the frequency: When the button is not depressed (red light) the filter will attenuate at 150 Hz. When the button is depressed, (blue light) the filter will attenuate at 240 Hz.

Keeping the RESONANCE button set to the far left on FLAT means that the filter will not be active. When the RESONANCE button is turned slowly clockwise, the filter will gradually attenuate at the chosen frequency.

Turn the knob to the point where a boomy feedback effect can be minimized without cutting too much from the signal and subsequently losing some of its lower end.

Filters

Using the filter section is very simple. The filters themselves have outstandingly innovative circuitry, enabling loss of sound to be kept to an absolute minimum. You will hardly hear any difference in sound quality regardless of whether the filters have been bypassed or active set to Flat (ON button depressed).

The EQ ON button will bypass (white light) or activate (green light when depressed) the filter section. This is a helpful tool for comparing a filter configuration with the unfiltered sound. Sound engineers often bypass filters to avoid a reduction in sound quality, letting the signal go through the filter circuitry. However, as we've already said, this is not the case with Arthur's filter circuitry, due to its outstanding dynamics.

The EQ ON button will not bypass the RESONANCE filter.

The HI knob lets you tune the high range of the audio spectrum (from 4.5kHz) from +/- 12dB with a slope of 18dB / octave. The 3rd order structure "keeps" the circle of influence within the filter's audio band so as not to overlap with the MID filters. This makes the adjustment of the treble frequencies more accurate.

The HI knob has a detent at its mid position, indicating the filter's flat position.

The MID knob, together with the MID FREQ knob, acts on frequencies within a wide mid range of 250 Hz to 3.2 kHz, with amplification or attenuation of +/- 15 dB.

The MID knob affects the amplitude (amplification or attenuation) while the MID FREQ knob affects the frequency.

The MID knob also has a detent at its mid position, indicating the filter's flat position.

The LOW filter knob lets you adjust the signal from +15/-20 dB up to 100Hz with a slope of 12dB / octave. The higher order prevents the low frequencies from overlapping with the parametric mid, making the adjustment of the lower frequencies much more accurate.

The LOW knob also has a detent at its mid position, indicating the filter's flat position.

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Channel ON / OFF switch section

The CHANNEL ON button connects or disconnects the output routing for all outputs (AUX1, AUX2, AUX3 and L/R), except the PFL routing. This function is similar to the MUTE button used on other mixers, but its functionality is reversed. When the CHANNEL ON button is depressed, all outputs get connected (whereas a MUTE button disconnects the output when pressed). Also, whereas a MUTE button normally only disconnects the L/R routing (the channel's fader), this CHANNEL ON button affects all outputs. Being able to switch off a channel strip makes sense in order that the signal will not still go through to stage monitors, or to the input of the reverb unit for example.

Please note: Even if the CHANNEL ON button is in the switched off position (not depressed, white light), the PFL and INSERT will still be ready to function, (as shown by the lights on their respective buttons), even though all other button lights are off.

The auxiliary sends

Just below the filter section you will find the auxiliary sends, labeled AUX SENDS. There are three knobs - one for the level control of each send (AUX1, AUX2, AUX3). Therefore, each single AUX send can be controlled independently from the others.

What's more, the unit enables every AUX send to "read" the signal pre or post fade. There are three buttons, each located at the side of its respective AUX level control, for setting the post or pre fade mode.

When the button is not depressed, (redlight) then the signal arrives "post fade". In this position the relevant auxiliary level will obviously be controlled by its level knob, but the final outcome will also depend on the channel fader's position. This is very useful when driving a reverb unit for example, where you can set the level knob to create the desired proportion of reverb to dry signal, then maintain this proportion while any overall level changes are made using the channel fader.

When the button is depressed (blue light), the signal arrives "pre fade", in other words it will be sent to the AUX master without being affected by the position or movement of the channel's fader. This configuration will normally be chosen when driving stage monitors (or similar devices) through the respective auxiliary master, where any influence from the main channel fader is not required.

Note: As well as the MASTER L/R unit, you will also need the MASTER AUX unit to benefit from all the AUX sends (and other additional options). The MASTER L/R unit can only receive AUX1, but this is just intended as a basic configuration where, for example, only one auxiliary send is needed to operate a reverb device.

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PFL

The PFL button (labeled PFL) is located on the right side of the channel fader under the PAN knob. Please note, you can only operate the PFL through the MASTER AUX unit.

As well as being a traditional PFL (pre fade listen), this one also serves as a fourth AUX send, albeit without the possibility of setting the level.

All channels that have their PFL switch (red light) activated will be mixed in the MASTER AUX unit and sent to the PFL output, controlled by the PFL fader on the master AUX unit. This function can be useful when using an additional monitor, for example for a singer, where only one signal might be required (in this case the signal from the “voice channel”).

Note: The PFL section still runs while the channel ON / OFF switch is deactivated (white light).

L/R fader section

The channel fader and its associated functionality is probably the most important part of the output process. In most cases, the signal going through here will be mixed in the Master L/R and will appear on the main L/R outputs that drive the recording device or the front-of-house PA speakers. This is the signal that is usually heard by the public.

The operation of the L/R fader section is identical to that on other mixing consoles. Using the PAN pot to the right of the channel fader, you can send the signal to the Left or Right channel.

The PAN pot configuration has been designed to guarantee the minimum noise and maximum dynamics in central position.

At the PAN pot's mid position, the signal flows to both channels at maximum level. In other words, when the PAN is set to the left, you will hear the signal on the left channel only. While turning the PAN pot from the left to the center position, the left channel's signal will not change, but the right channel's signal will continuously increase, reaching its maximum level at the center position - and vice versa.

The channel fader lets you control the total amount of signal that goes to the masters. If you want to exclude the channel's signal from the L/R master without changing the fader's position, you can simply switch the CHANNEL ON button to its OFF position (white light). This button will then be acting as a MUTE.

TECHNICAL SPECS

Input impedance:	4.7 kohm
Maximum input level:	+4dBu (@1kHz; THD<0.5%) (LOW MODE) +26dBu (@1kHz; THD<0.5%) (HIGH MODE)
Maximum output level (through L/R):	+30dBu (@1kHz ; THD <0.5%)
Sentivity (accordingly to Gain):	-60dBu to -18dBu (LOW MODE) -20dBu to 9dBu (HIGH MODE)
Total gain (through L/R):	72db
Frequency response: (-3dB)	16Hz – 125 kHz
Low cut: (-3dB)	100 Hz (Shelving, 2nd order)
Reson attenuation:	10dB @ 150 Hz / 240 Hz
Low EQ:	100 Hz (Shelving) -20dB / +15dB
Parametric Mid EQ:	250 Hz – 3 kHz -15dB / +15dB
High EQ:	4.5 kHz (Shelving) -12dB / +12dB
Equivalent input noise (EIN):	122,5dB (Insert, 60dB Gain, 150ohm) (STANDARD model) 128,7dB (Insert, 60dB Gain, 150ohm) (ULN model)
Distortion (THD+N; @1kHz):	0.13% (2nd harmonic)
-30dBu input level	0.06% (3rd harmonic)
0dBu output level	0.015% (4th harmonic) 0.008% (5th harmonic)
Power consumption:	80mA
Size & Weight:	36x58x475mm; 0,5 kg

NOTE

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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