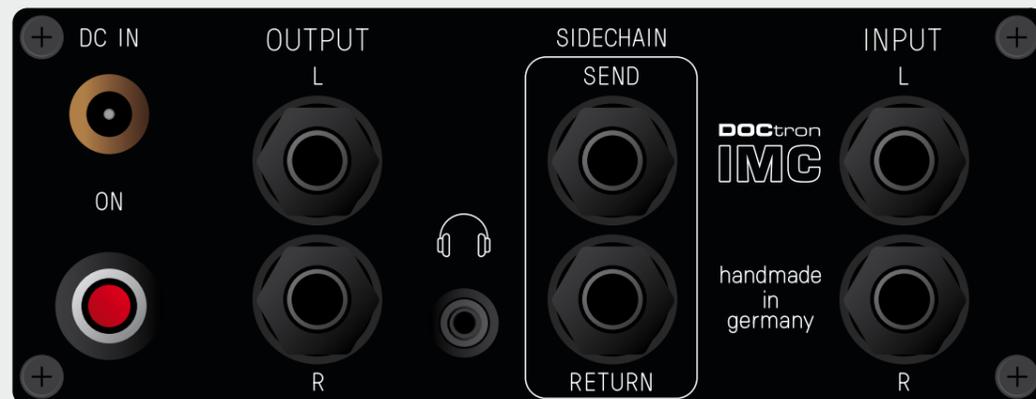


SET-UP AND OPERATING INSTRUCTIONS

v. 5.1.7s

IMC

v. 5.1.7s



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HANDMADE
IN
GERMANY



CAN ICES-3 (B)/NMB-3(B)



MARTIN STIMMING



MICHAEL SCHNEIDER

DOCtron

INTRODUCTION

IMC, meanwhile in version 5, is an idea and commissioned work of one of Germany's most credible techno artists: Martin Stimming. The original idea behind IMC is to create a device that is small, light and handy, allowing a liveshow to sound loud and thick without a computer on stage. While being tied to the studio in 2020 and 2021 Stimming found out how useful it is there as well.

The signal path is consistently analog. In the course of development, the operation was then digitized and the circuit itself continuously expanded and supplemented, based on Martin Stimming's experience with the prototype devices in tough live use around the world.

From working together on this device, a friendship arose that spurred each other on to make IMC accessible to everyone. The result is a device that represents a milestone in technical and practical terms. IMC is elaborately crafted by hand. The „inner values“ are excellent and the case (also manufactured by DOCtron) made of carbon underlines the maxim that allows a device in the smallest space, as easy and uncomplicated as possible! An audio processor chain, which otherwise only digitally or with much higher budget and physical space use would be possible.

IMC5 is a sound-shaping device used as a replacement for a classic mastering chain. Included here is a British-style low and high-shelf EQ with dedicated bypass and a VCA based bus compressor with FF/FB detector path. The following instructions will now introduce the device in detail. The manual also represents the current state of development.

In this tutorial we're scratching the surface. In the depth you have to go yourself...

WHAT'S NEW

The latest revision of the IMC has received a lot of innovations and long wanted improvements:

- In-/Outputs are now fully balanced which results in +3dB more headroom
- IMC can now also be used as a DI box which saves the use of an external DI box interfacing to front-of-house
- New Toggle-Switches with LEDS giving better tactile performance and allows secured switching of all buttons
- True Bypass optimized with new circuit. Now independent of any present voltage.
- Improved headamp impedance with optimized volume control for headphones
- Optimization of the housing labeling in terms of legibility and usability

And now have fun with IMC!

SAFETY

The listed safety regulations should be carefully observed. Please observe the following instructions and read this manual. For further questions please feel free to contact us.



1. ALWAYS USE THE PROVIDED POWER SUPPLY

Please select the proper AC-PLUG before using the power supply. NEVER USE A DAMAGED PLUG. If the power supply or one of the plugs is damaged, please contact us to get spare parts.



2. WHEN INSTALLING INTO A RACK, BE SURE TO PROVIDE ADEQUATE VENTILATION.

The top and bottom ventilation slots are not decoration and should never be covered during operation. The main reason for technical defects are mostly heat problems. In non-ventilated cabinets, use ventilation panels (1H) between units (even if they don't look very beautiful) to prevent heat build-up.



3. AVOID PLACES WITH STRONG MAGNETIC FIELDS.

The housings of the device are designed to protect the sensitive electronics from EMI and RFI. For rack mounting, be sure to place devices with large power supplies or power amplifiers as far away from the unit as possible in the rack. A separate routing of signal and power lines can also help to suppress EMI and RFI as much as possible.

4. PROTECT YOUR DEVICE FROM MOISTURE AND WATER SPLASHES.

If water has entered the housing, disconnect it immediately from the mains and send it to us for inspection to prevent major damage.



5. IF YOU FEEL UNSURE ABOUT HAVING TO OPEN THE DEVICE

There are no more controls, fuses or jumper inside the current device. Usually there is no need to open the box. Please contact our support team if you are unsure. We're here to help.



6. BEFORE YOU OPEN THE DEVICE

Be sure to **unplug the power adapter before opening the case**. Disconnect the device from the mains! Make sure that no foreign parts remain in the device after completion of the work.



 THE RED EXCLAMATION MARK IS AN INDICATION TO THE USER ABOUT SAFETY-RELEVANT FACTS AND FACTS RELEVANT TO SERVICE IN THIS MANUAL.

OVERVIEW

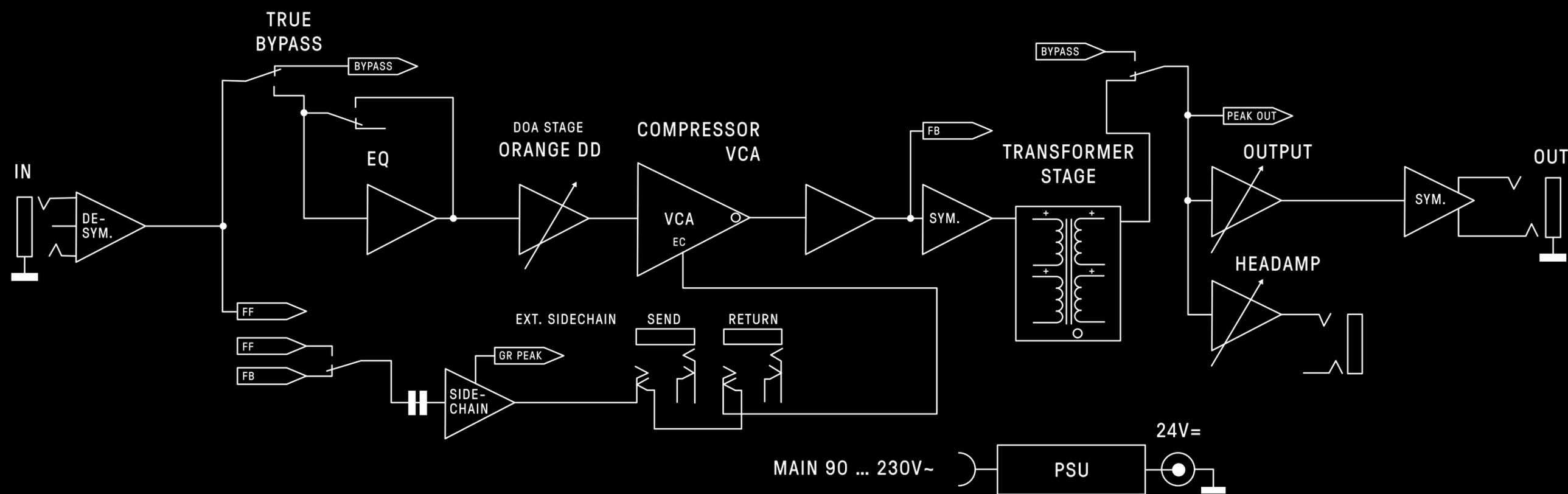


FIG. 01 – BLOCK DIAGRAM

THE GENERAL CIRCUIT DESCRIPTION IS INITIALLY LIMITED TO THE AUDIOPATH.

THE INDIVIDUAL PARTS OF THE CIRCUIT WILL BE DESCRIBED LATER IN DETAIL.

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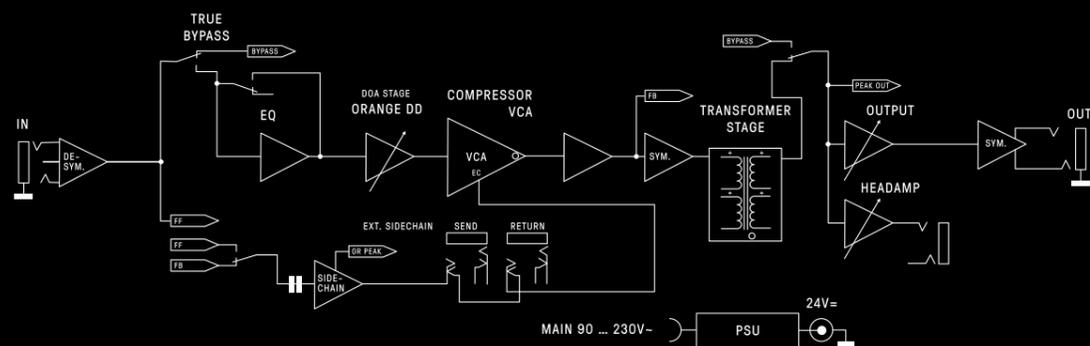


FIG. 01 – BLOCK DIAGRAM

Since both channels are identical, only the left channel is described here, as shown in the block diagram. IMC5 has a so-called „true-bypass“, which means that the audio signal in the de-energized state is passed uninfluenced from input to output. The audio signal goes via an isolated 6,3mm jack socket to the treble and bass EQ. Then the audio signal reaches a sound-forming, discrete operational amplifier (ORANGE DD). Now the signal reaches the VCA compressor. The output stage of the compressor reaches a further amplifier stage, which later determines the saturation for the output transformer. The signal conditioned in this way now reaches a balancing driver stage and finally the LUNDAHL output transformer. At the output of the transformer, the signal is routed to the adjustable Output-Stage and to the headphone amplifier.

The remaining circuit parts work exclusively with control voltage and are not in the audio path. Thus, no interference can enter the signal path. The separation between audio path and control voltages is also made by using 6-way multilayer boards with their own ground layers. This reduces interference enormously. New in v5 is also an external Sidechain (Send / Return on the backplane).

The power supply is via an external switching power supply. This power supply must deliver at least 20V-24V. The distribution of the positive and negative supply voltages is carried out in the device by its own sub-switching power supplies.

Due to the conductivity of the carbon casing material, sufficient protection against the outside world is ensured. The interior of the housing no longer needs to be sprayed with conductive ink, as with IMC1.

THE INDIVIDUAL CIRCUIT PARTS IN DETAIL

THE POWER SUPPLY

The external switching power supply is plugged in with a hollow plug on the back of IMC5. The power supply has a very large voltage and frequency range and should be universally applicable. Please check before connecting the mains connection, if the primary connection corresponds to the specifications on site! The power plug should be unplugged when connecting or disconnecting the power supply to the IMC.

The internal overload fuses could trigger. If this is the case, please wait a few minutes. The fuses are self-resetting. IMC5 has comprehensive reverse polarity protection and protection circuits against “phantom-power”. All safety devices are self-resetting. An opening of the housing is therefore not necessary.

In general, all audio connections should be made before power is supplied to the device. In addition to the main connector is a main switch. This switch turns the IMC5 on or off.

Here are the technical data of the external power supply used:

FEATURES AND FUNCTIONS OF THE SERIES

- AC – DC Wall Mount Adapter, Switching Power Supply
- Closed / Splash proof
- Low standby consumption
- Compact construction
- Overload and short circuit proof
- Safety Standards: UL62368-1, CSA C22.2 NO. 62368-1, TUV BS EN/EN62368-1, AS/NZS 60950.1, CCC GB4943, EAC TP TC 004 approved

POWER SUPPLY SPECIFICATIONS:

- Input voltage: 90 - 264 V AC / 47 - 63 Hz
- Power: 24W
- Efficiency: DOE VI
- Idle input: <0.15 W
- Isolation: 3000 V AC / 1 min
- Overcurrent protection: short-circuit protection
- Overvoltage protection: 120%
- Output: 24 V DC / 0 – 1.0 A
- Ripple: 240 mVpp
- Weight: 134g

INPUT AND OUTPUT SOCKETS

The audio connections are made via 6,3mm jack sockets. In fact they are “stereo”-jacks. Unbalanced cables/jacks also could be used. In this case the negative signal (RING) will be grounded. If you connect the device to an unbalanced In- or Output, please take care that negative signal (RING) is proper grounded! To avoid hum the ground connection should be close to the IMC-jack (the balanced side). IMC5 is fully balanced.

A ground-lift jumper is not provided at the outputs. For testing, the use of a ground-free intermediate plug is recommended. Simply insert the adapter between Output-Left (or Right) and the following device. The adapter reliably disconnects the ground to the subsequent connection.



THE ACTIVE-BUTTON

IMC5 has a „true bypass“ circuit. This circuit makes it possible for the device to remain in the signal path even without a power supply. In this case, the applied audio signal is switched to the output directly and lossless. The ON button on the front left of the front panel allows manual switching of true bypass. A red LED is signaling an active unit.



THE EQ-BUTTON

The knob in the middle switches the EQ in the audio-path. A pressed switch causes a red LED to light up and is signaling an active EQ. Use this switch for a quick check of the defeat signal against the EQ signal.

THE FF/FB-BUTTON / OVER-LED

This knob defines the working character of the compressor. There are two types of signal tap for the sidechain: The feed forward (= FF) is the signal before the compressor tapped, with feed backward (= FB) after the compressor. Newer compressors work almost exclusively with „Feed Forward“ (FF). Many „classics“ (such as 1176 or 660) used the Feed Backward (FB) method. The difference between the types: FF intervenes much „harder“ in the signal. FB allows a much „gentler“ method of compression.

If the FF/FB-LED lights red the compressor is working in FF-mode. A dark LED means that the compressor is working in FB-mode. If the LED inside the Button flickers or light brighter than the rest the overload indicator (OVER) is active. It flashes in case of an output signal greater than +6 dB. It's not a signal indicating distortion! It just informs the user that you are reaching a zone in which you must be careful not to jump over the top.



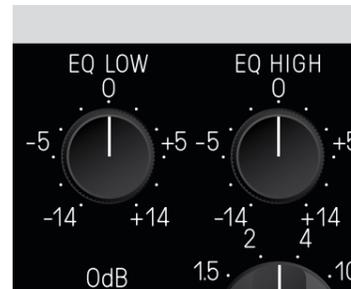
INPUT

The INPUT potentiometer is an attenuation of the input signal. It reduces the input signal in a range from -10 dB to 0 dB. Because IMC is a grateful amplifier it needs some “headroom” to work. Also, one can reduce the pending signal before reaching the EQ.



THE EQ

The EQ allows to rearrange the pending signal in a wide range. It is a shelving EQ changing the low signals (approx 60 Hz) and high signals (approx 12 kHz). The range is from -14dB to +14 dB for each frequency range. By toggling the EQ-switch one can switch direct both bands from 0dB (linear) to the selected range.

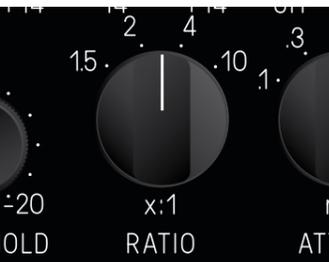


THRESHOLD

The THRESHOLD determines the threshold where the compressor starts to work. In full left position (+20 dB) the compressor won't work. A full right position (-20 dB) means that all signals louder than -20 dB will be compressed. With THRESHOLD one can establish how much compression should be present in the audio-signal. Threshold determines from which signal threshold the compressor should be present in the audio-signal.

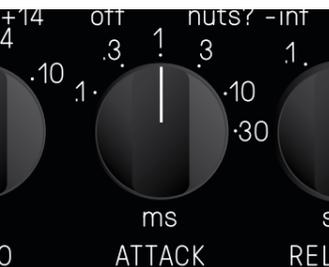


THE COMPRESSOR



RATIO / ATTACK /

Ratio determines the ratio of uncompressed to compressed signal. 1: 1.5 is therefore a slight compression, while 1:10 can be described as a very strong compression. For sum compression in mastering, a slight compression of 1: 1.5 or 1: 2 is preferred.



ATTACK

Attack determines how fast the compressor should react. The shorter the selected time, the faster the compression will affect the signal. The indicated time for the ATTACK switch is measured in milliseconds (msec).



RELEASE

Release determines the time after which the compressor „releases“ the signal again. The longer the release, the longer it takes for the compressed level to return to an uncompressed state. A special feature is the setting „AUTO“. In this setting, the release time is automatically determined by the applied signal. The compressor then adjusts the release time to the program material. The indicated time for the RELEASE switch is measured in seconds (sec).

With these three switches one can regulate the parameters of the integrated compressor.

DRIVE & OUTPUT



These two potentiometers are the most important parameter for the unique IMC-circuit.

They determine how “fat” the output signal will sound. DRIVE determines how much the integrated transformer will be driven in saturation and with OUTPUT one can regulate the signal back into “real world”. With DRIVE you put your audio signal right before the distortion limit and with OUTPUT you can

handle the amount of “coloring” the transformer output while also reducing the output level. To say it clear: IMC is a pure analog machine. There are no “parental controls”! If you choose to put DRIVE to the nuts?-position you will get a horrible distorted signal.

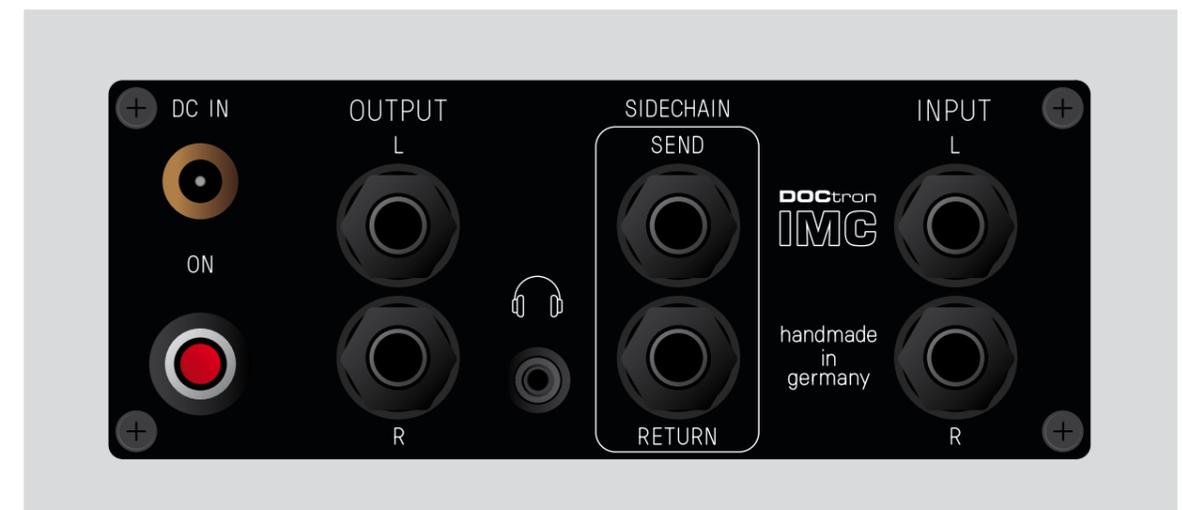
PHONES

The output-jack for the headphones is on the back (3,5mm stereo jack). With the PHONES potentiometer you can regulate the volume for your headphones. The integrated headamp is intended for usual in-ears with an impedance greater than 20 Ohms. It also can be used as a line-level monitor-out. Please switch the unit off before connecting your phones to IMC and please reduce the PHONES-level to minimum before putting the phones in your ear.



**BE CAREFUL WITH THE VOLUME. DON'T HEAR TOO LOUD.
YOU ONLY HAVE ONE PAIR OF EARS!!**

BACKPLATE / CONNECTIONS



POWER

Connect the power adapter to DC IN. Please make all connections before switching the unit ON. The power switch has an orange indicator when pressed (also visible without power connected)

INPUT

Connect your Audio-signal to INPUT LEFT and RIGHT. You must use 6,3mm stereo plugs for balanced operation. If you use mono plugs the “ring” (negative signal) will internally bridge to ground (and the signal will be unbalanced).

BACKPLATE / CONNECTIONS



Connect OUTPUT LEFT and RIGHT. You must use 6,3mm stereo plugs for balanced operation. If you use mono plugs the “ring” (negative signal) will internally bridge to ground (and the signal will be unbalanced).

PROTECTION

All inputs and outputs are protected against phantom power or other DC-voltages. Nevertheless, please be careful to switch phantom power off because the protection can degrade the audio-signal!



SIDECHAIN

With SIDECHAIN SEND and RETURN you can influence the control voltage of the compressor. You can insert an Equalizer, for example, to influence the frequency-range the compressor will compress.

You can also insert a different audio signal (only the bassdrum for example) for the compressor to react differently.

Important: The external sidechain is NOT in the signal-path. You only handle control-voltage which influences the VCA-compressor.

If no plug is inserted the SIDECHAIN is out of the chain. If you plug something in the SEND or RETURN plug the control-voltage is interrupted. As long as there is no external device connected and only a plug is inserted, the compressor won't work! No sidechain – no compression.

Connect the output of your external device to SEND and the input to RETURN. The Sidechain is MONO. You can plug mono or stereo plugs in the sidechain. The “ring” of a stereo-connector is internally not connected.

TECHNICAL SPECIFICATIONS

Here are the mandatory technical data of the device.

Frequency response:	+0.13 dB, -0.18 dB
Noise level:	-108 dB (A)
Dynamic range:	108 dB (A)
THD:	0,0099 %
Stereo cross-talk	-101,3 dB (A)
IMD at 10 kHz	0,0186 %
primary voltage:	90 - 264 V ~
el. power:	12 Watt (max)
Input Voltage Range	27,5 dBu
Input Impedance	47 kΩ
PSRR	90 dB
Max. Output Level	+24 dBu@20Hz (load 600Ω)
Weight: IMC	~ 1000g

Cable length:

For operation within the CE / FCC certification, the audio cables used must be shielded and must not exceed a maximum length of three meters

SUPPLIER'S DECLARATION OF CONFORMITY

MANUFACTURER:	DOCtron UG Frankenstraße 14 91717 Wassertrüdingen
CONTACT PERSON:	Schneider Michael +49 9832 708844 info@doctron.de
U.S. RESPONSIBLE PARTY:	TianHeng Consulting, LLC 392 Andover Street Wilmington, MA 01887, United States
CONTACT PERSON:	Hualing Dong Phone: +1-617- 997-4010 Email: info@tianhengconsulting.com
PRODUCT NAME: MODEL NUMBER(S):	NF-Audio-PreAmp IMC 5
DECLARATION OF RESPONSIBLE PARTY:	We hereby declare that the equipment bearing the product name and model number specified above was tested conforming to the FCC Rules and Regulations Title 47 Part 15 and the most accurate measurement standards. We confirm that the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the Commission's requirements.
FCC COMPLIANCE STATEMENT:	This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
INNOVATION, SCIENCE AND ECONOMIC DEVELOPMENT CANADA ICES-003 COMPLIANCE LABEL:	CAN ICES-3 (B)/NMB-3(B)3

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