

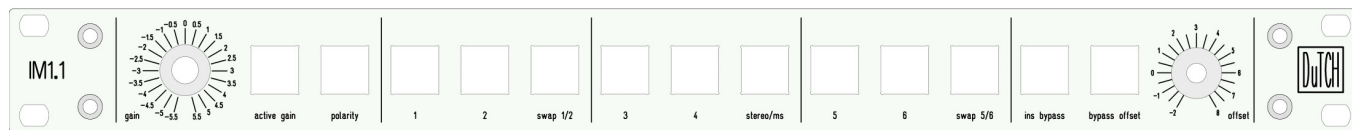


DuTCH audio IM1.1 Insert Matrix manual



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(v1.0 23-01-2019)



Thank you for purchasing the DuTCH audio mastering Insert Matrix IM1.1. In this manual we will explain how this device works and how to use it. Since this is not really a beginner's device, we will skip the basics and focus on it's functions. We will go from the inputs (left side), to the inserts (middle) and to the outputs (right side), basically how the device handles signals.

Input:

Active gain:

The input is passive with just relays, but by pushing the 'active gain' button you will enable the active gain stage which enables you to change the input gain to your liking. In the mid/0 position, there is no gain applied though it passes the active gain circuit. You can change the gain in 23x0.5dB steps from +5.5dB to -5.5dB with stepped switches.

Polarity:

The 'polarity' button will swap the polarity of both Left and Right. Sometimes swapping polarity will give a better response, mostly in the low frequencies. In most cases swapping polarity is not needed, but in the cases where you want to, this button comes in very handy. Keep in mind that obviously this only works with balanced signals.

Inserts:

Insert 1 and 2:

This is a 100% passive insert section with just relays. When disabled, it will directly pass the signal internally to the next stage. When you enable the insert (1 and/or 2), it will pass the signal to the corresponding send/return. It will first pass insert 1 and then it goes into insert 2. When you push the 'swap 1 /2' button, it will swap the order of the inserts. So instead of 1>2 it will become 2>1.

Insert 3 and 4 (mid/side):

Insert 3 and 4 can be used for Mid/Side processing. When set to stereo, it will be 100% passive, when set to MS, it will pass the active mid/side circuit.

Mid Side:

When the 'stereo/ms' button is engaged, both inserts 3 and 4 will work in MS mode. Left channel is Mid (sum), Right channel is Side (diff). You should keep in mind that the sum could/will be louder then the diff channel because of the LR summing/gain buildup.

Insert 5 and 6:

This is a 100% passive insert section with just relays. When disabled, it will directly pass the signal internally to the next stage. When you enable the insert (5 and/or 6), it will pass the signal to the corresponding send/return. It will first pass insert 5 and then it goes into

insert 6. When you push the 'swap 5/6' button, it will swap the order of the inserts. So instead of 5>6 it will become 6>5.

Output:

Bypass:

When you press the 'bypass' button, all inserts will be bypassed at once. The bypass button becomes red and all other buttons will be 'greyed out'. This way, the input goes directly to the output with nothing inline except for some relays.

Bypass offset:

When you push the 'bypass offset' button, it will bypass all inserts and the active gain stage 'bypass offset' comes active. The monitor offset will allow you to change the bypass gain to make up for the processing of the inserts. This way you can A/B between the analog processing and level-matched bypassed signal. The gain range is set from -2dB to +8dB done with a potmeter instead of a stepped switch for a more precise adjustment. And since this is just an AB function no recall is needed. Internally the gain range of the monitor trim can be calibrated with 2 multiturn trimmers.

Rearpanel:

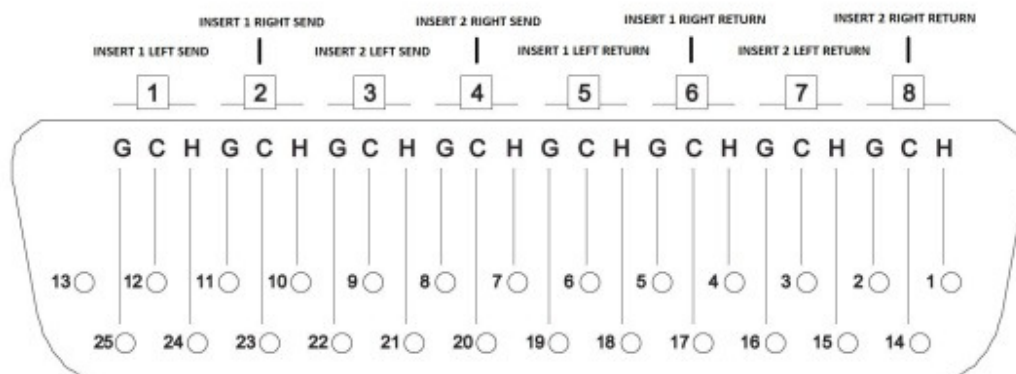
Inputs:

The IM1.1 has balanced inputs. Both inputs consist of gold-plated Neutrik XLR's.

Inserts:

The IM1.1 has 6 balanced inserts connected on the back with industry standard Tascam DB25 analog connectors. Each connector holds 2 inserts corresponding with the frontpanel numbering.

Pin-out for TASCAM DB25 8 Channel Balanced Connector



Note: Be careful with DB25 tascam standard premade cables. The digital AES/EBU cables like the Hosa AES-803T have their XLR's connected in the wrong way which swaps send/return. Though it's an easy fix (swap all XLR male and female), you might want to look at this carefully.

Outputs:

On the rearpanel you will find the output with balanced gold-plated Neutrik XLR's.

Power:

The 'power' input is for connecting the external power-supply to the IM1.1.

Technical:

Hardware:

This device is built around mostly passive circuits, but some sections need to be active, but always with transparency in mind. The sturdy frontpanel-switches have, depending on their function, 2 color leds for visual feedback. All relays are high sensitive, long-life (15.000.000 cycles) Omron Relays.

Stepped switches are military grade Blore Edwards for long life and really nice mechanical feel. In and output connectors are gold plated Neutrik and industrial DB25 connectors for inserts. Active circuits make use of analog devices, THAT and Burr Brown drivers. The mid/side circuit is based on the well-known circuit from Wayne Kirkwood, but with additions/modifications.

The external PSU is build around long-life industrial Meanwell SMPS's which run with way less noise and are way more efficient then linear PSU's. Both the relays/leds and active circuit PSU's are running on their own separate PSU.

When this device is used in passive mode, so without active stages, it's 100% passive and only relay-contacts are inline. This means it's basically a straight wire.

Pushswitch labeling:

To have some extra visual feedback on the push-switches you can put labels under the switch-covers. You can simply, but carefully, remove the switch cover with a small screwdriver and put something like a transparent dymo letratag sticker on the white plastic piece inside the switch-cover.

Specifications:

Maximum gain passive: >+24dBu

Maximum gain active gain: +24dBu

Maximum gain mid/side: +22dBu

Noise level passive: >118dB(a)

Noise level active: >116dB(a)

Stereo crosstalk: >110dB(a)

Stereo crosstalk mid/side: >80dB(a)

THD passive: 0.00042%

THD active: 0.00045%

Input voltage 100 to 240VAC 50/60HZ.

Power consumption minimum 3 watt

Power consumption maximum 20 watt

(Power consumption depends on the amount of inserts, input, output etc activated)

Unit size: standard 1u 19 inch, depth 25cm

Weight: approx 2kg

Specifications subject to change because always improving



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