



**roger schult**  
**german audio lab**

**extended stereo image processing system**  
**W2344 MK2 RS-MATRIX**

**Operating Manual**  
**Quick Guide**

W2344 MK2 RS-MATRIX Operating Manual Version 01.2018  
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**Dear customer,**

congratulations for your purchase of the W2344 MK2 RS-MATRIX. We thank you for your confidence.

This unit was built according to the best available state of technology and fulfils all European and national standards. The EMV conformity was proven, all documents and declarations can be made available on request. The product left our factory in flawless safety-related condition.

In order to maintain this secure delivery status please follow the rules of this manual and additional safety documents as they contain important hints for startup and practical use of the unit. Also make sure to take along those documents when you give the unit to other persons.

Any other use than the one described in this document can lead to damage of the product. Furthermore danger of fire, short circuit or electrical shock can occur. There are no user serviceable parts inside the unit. Please refer servicing to qualified personnel. The use under adverse conditions like humidity, dust, vapors or solvents is not allowed.

Please take care of adequate cooling of the external power supply. Don't cover the cooling fins of the housing.

Clean the unit only with a soft, clean cloth. Avoid the use of detergents as they may damage the finish of the housing. Disconnect mains before cleaning.

In case of any technical questions please refer to our service department. You will find all necessary contact information in the appendix of this document.

## Concept

Coding a stereo signal into a mid- and a side-channel instead of the traditional subdivision in left and right, offers groundbreaking new possibilities in the mixing and mastering process. Specific manipulations of the mid- and side channels can achieve great improvement of the spatial image of a recording regarding both depth and left- right imaging. Especially for the control of the spatial image during vinyl mastering precise mid-side-editing is indispensable. The transformation of left-right to mid-side signals and vice versa, however, was comparatively complex up to now.

Being a completely analog tool for the flexible editing of stereo signals, the W2344 MK2 RS-MATRIX offers the solution for those problems. Besides two switchable stereo inputs the first section provides precise level controls for left and right input channel, a summing possibility for left and right channel for an easy control of the mono compatibility of the signal, and a phase reverse switch for the left channel.

Thereupon the signal path features two insert points for external signal processors, which can be individually switched from M/S to L/R-operation via simple ELMA rotary switches. The bypass-setting is located in the middle position of the switches, allowing the direct comparison of the processed signal with the original without hearing the other stereo configuration for a short moment during the switching process.

Between those insert points an advanced filter section is located, offering each one fully parametric filter for mid and side channel. The possible center frequencies of the filters differ from each other, since they have been optimized for use in the mid and side channels respectively. Both circuits can also be used as high or low-pass filters.

The feature set is completed with phase-correct solo switches for mid and side channel, as well as a stereo width control, which allows a smooth control of the spatial image utilizing the mix ratio between mid and side channel. The control range reaches from zero (mono, mid signal only) up to doubled stereo width (side channel 6 dB louder than mid channel).

## Controls of the W2344 MK2 RS-MATRIX

### “source 1/2”

Switches the input circuit between the two stereo inputs.

### “L+R”

Sums the left and right input channel to control the mono compatibility of the signal

### “phase L”

Phase reverse of the left input channel

### “L<->R”

Swaps left and right input channel

### “input level”

These potentiometers allow the levels of the left and right input channels to be adjusted in a range of +/- 5 dB. The potentiometers are stepped for an easy recall of their settings.

### **“insert 1” / “insert 2”**

Via these two ELMA rotary switches the two external insert paths are changed from L/R to M/S mode or to bypass.

### **“flip”**

By default, the signal flow is as follows: Insert 1 => Filter section => insert 2 => stereo width control. This switch flips the position of the two insert points in order to make insert 2 the first processor in the signal chain.

### **“solo” - M und “solo” - S**

Solo switches for a phase correct preview of mid- and side channel

### **EQ “level” M / S**

Gain control for the parametric filters of the side (upper) and mid (lower) channel. Allows the boost or cut of the frequency selected by the frequency selector by +/- 10 dB. The potentiometers are stepped with 41 points for an easy recall of their settings.

### **EQ “frequency” M / S**

These potentiometers allow you to select the center frequencies of the filters of the mid and side channels. The frequency can be adjusted continuously from 15 Hz to 500 Hz in the mid- and from 125 Hz to 6 kHz in the side channel. Stepped potentiometers are available on request.

### **“x3”-switches**

These switches triple the value of the corresponding frequency selector. This enables the filters to reach maximum center frequencies of 1.5 kHz in the mid- and 18 kHz in the side-channel.

### **“bandwidth”**

The bandwidth rotary switches select the bandwidth of the corresponding filter in 8 steps between  $Q=0.3$  and  $Q=10$ . Additionally, the filters can be set to work as high- or lowpass-units. In this case, the corresponding level potentiometers have no function.

**“filter on”**-switches activate filters for mid and side channels.

### **“stereo width”**

The stereo width control allows a continuous control of the spatial image. The center position represents normal stereo operation. The control of the stereo width is only achieved by changing the mix ratio between mid and side channel. There is no further processing of the signal's phase. The control range reaches from zero (mono, mid signal only) up to doubled stereo width (side channel 6 dB louder than mid channel).

### **“normal stereo”**

This switch defeats the stereo width control to provide a quick A/B-control of the width processing with the original signal. For maximum signal integrity we additionally recommend the use of this switch if you don't need the width control, since it removes the potentiometer completely from the signal path.

### **“on”-switch**

The “on”-switch serves as a bypass button for the whole processing provided by the RS-MATRIX including filter circuits, stereo width control and the processing of external devices connected to the insert points.

All switches of the W2344 MK2 RS-MATRIX are illuminated in active state to provide reliable optical control of the settings at any time. Stepped filter frequency potentiometers are available as an option. This makes the W2344 MK2 RS-MATRIX a reliable tool for demanding mastering environments

## Technical Data

Tentative spec sheet, 01/2018

### Filter - side signal

Frequency range	125 Hz to 6 kHz (375 Hz to 18 kHz on activated x3-function)
Gain, 41 stepped Alps-rotary control	range -10 dB / +10 dB
Q-factor, 11-position switch	0.3 / 0.5 / 0.7 / 1.0 / 1.5 / 2.5 / 4 / 6 / 10
„S“-solo, switch	HP on left stop, LP on right stop
„x3“-switch	solo/preview side channel
„S“-filter on, switch	extend frequency range up to factor 3 activate filter function for side channel

### Filter - mid signal

Frequency range	15 Hz to 500 Hz (45 Hz to 1.5 kHz on activated x3-function)
Gain, 41 stepped Alps-rotary control	range -10 dB / +10 dB
Q-factor, 11-position switch	0.3 / 0.5 / 0.7 / 1.0 / 1.5 / 2.5 / 4 / 6 / 10
„M“-solo, switch	HP on left stop, LP on right stop
„x3“-switch	solo/preview mid channel
„M“-filter on, switch	extend frequency range up to factor 3 activate filter function for mid channel

### Input (electronically balanced)

Reference input level	+6 dBu
Maximum input level	+27 dBu
Input impedance	47 kOhm

### Output (electronically balanced)

Reference output level	+6 dBu
Maximum output level	+27 dBu
Output impedance	55 Ohm
Gain at linear setting	0 dB (+0.1 / -0.2 dB, 20 Hz - 40 kHz)
Signal-to-noise ratio	< 100 dB
Noise level, THD+N / 0 dB	0.009 % (20 Hz - 40 kHz)
Delay time of hard bypass relais	max. 3 ms
Power supply	230 V AC, 50 Hz, 65 Watt
Optional	115 V AC, 60 Hz, 65 Watt
Dimension	19" / 5 RU, 483 x 88 x 330 mm (wxhxd)
Weight	5.5 kg
External power supply N2304	
Dimension	106 x 83 x 185 mm (wxhxd)
Weight	4.9 kg

## Functions

source 1/2	source selection, input 1 or 2
L+R	mono signal, sum L+R
phase L	inverts phase L
L<->R	swaps L and R
input level	range of +/- 5 dB
insert 1	insert path 1
solo	preview of mid- and side channel
level	filter gain control, range of +/- 10 dB
frequency	filter frequency range
x3	extend frequency range up to factor 3
bandwidth	Q-factor, filter quality
filter on	activate filter
insert 2	insert path 2
flip	swaps insert point 1 and 2
stereo width	range from mono up to doubled stereo
normal stereo	switch to normal stereo (stereo width 1)
on	bypass

## Scope of delivery and compatibility

### Scope of delivery

- W2344 MK2 RS-MATRIX
- Power supply N2310 incl. power cord
- Quick start guide in German
- Quick start guide in English

### Compatibility

The compatibility certification records for this product are available upon request from the manufacturer.

As all Roger Schult products, the W2344 MK2 RS-MATRIX is hand-crafted and precision-engineered in Germany.

## Disposal

Please think of the environment – dispose defective units according to your local statutory provisions in an appropriate waste collection point. The sticker showing a crossed dust bin indicates that this product must not be disposed in domestic waste.



In order to avoid any possible harm to environment or health and in order to assure that this product is recycled in an appropriate way, it must not be disposed in domestic waste.

Information on appropriate waste collection points can be obtained at your responsible authorities or at the dealer from whom you purchased this product.

## Manufacturer

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