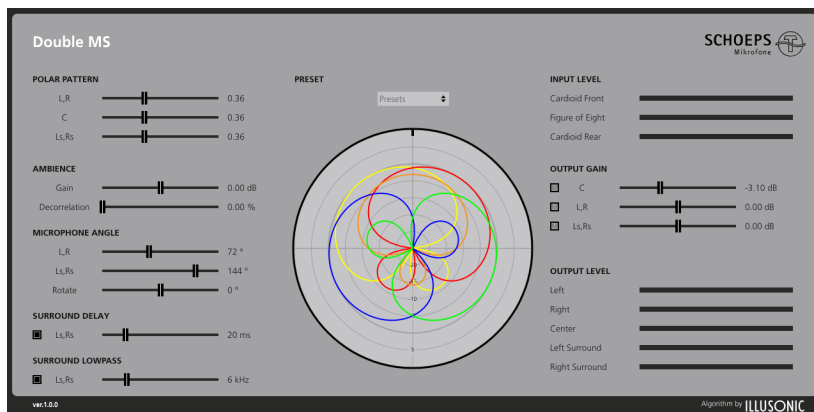


**USER GUIDE**

**Double MS Plugin**



**Table of Contents**

	page
Introduction	2
Installation	4
Routing	5
Parameters	8
Changelog	9

## INTRODUCTION

The SCHOEPS Double MS plugin allows you to decode the three microphone signals of the Double MS setup flexibly and intuitively. With the three microphone signals of the Double MS setup (front facing cardioid, side figure-of-eight, rear facing cardioid) you can create virtual microphones on the horizontal plane. This approach is very similar to A-format Ambisonics microphones. The decoding of the input signals happens in real time and is always visualized by the polar patterns in the plugin window. As such, the Double MS tool is an intuitive way of finding the best setting for your recording, even in post-production.

The SCHOEPS Double MS plugin normalizes the sensitivity of the CCM 8 to match the CCM 2's and compensates for the low frequency loss of the figure-of-eight microphone. The plugin can also be used with other microphone brands, although the resulting virtual polar patterns might be inaccurate without the correct normalization coefficients.

In addition you can increase or decrease the diffuse sound of your recording in a very user-friendly way. This is a great feature to compensate for suboptimal microphone placement when the recording has too much or too little room sound.

The included presets give you optimal decoding for 4 or 5 channels and can serve as a starting point to explore the possibilities of the Double MS setup.

The high cut filter and the delay function for the rear channels give you an excellent way of optimizing the front/back localization of your surround image.

If you are not familiar with the Double MS format, you can have a look at the following article to get a better understanding of the underlying principles:

- [Double MS EN](#)
- [Doppel MS DE](#)

**Key Features**

- Easy decoding of the Double MS microphone signals to Stereo or Surround
- Intuitive control of the virtual microphones in a colored polar plot window
- Flexibility to deliver Mono/Stereo, 3-channel or even Surround sound from a compact microphone setup
- Increase or decrease the diffuse sound contained in the signals
- Improve front/back localization with a high cut filter and a delay on the rear speaker signals
- Enhance envelopment by increasing the amount of decorrelation

**Applications**

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- Location sound
- Music recording

## INSTALLATION

- If you do not have an account, register for free on the [Plugin Alliance](#) website
- Download the [installation manager](#) from the website and select the SCHOEPS DoubleMS plugin
- Follow the installation instructions
- Open the plugin in your DAW of choice and click on the plugin window to activate
- If your computer is connected to the Internet, click the "I'm Online" button and enter your Plugin Alliance credentials on the following page

For offline activation instructions and additional information, please refer to the [Activation Manual](#).

For more information, please visit: [www.plugin-alliance.com](http://www.plugin-alliance.com).

## ROUTING

You can use the plugin either as an insert effect or as a send effect. In both cases the Double MS plugin takes 3 input signals and 5 output signals. If you do not have Double MS signals to work with, you can download some example recordings to test the plugin [here](#).

The routing is dependent on the DAW you are using. Logic Pro X in particular behaves very differently compared to ProTools and Nuendo. The I/O signals of the Double MS plugin conform to the ITU standard.

### Output signals

1. Left
2. Right
3. Center
4. LFE - not used
5. Left surround
6. Right surround

### Input signals

1. Left = Front facing cardioid
2. Right = Figure-of-eight
3. Center = Rear facing cardioid

### As a send effect

If you want to use the plugin as a send effect, you first have to create an 5.0 or 5.1 effect track. Then you create three mono tracks which hold the three different Double MS microphone signals:

4. Front facing cardioid microphone signal.  
Must be routed to the left input of the effect track.
5. Figure of eight microphone signal.  
Must be routed to the right input of the effect track.
6. Rear facing cardioid microphone signal.  
Must be routed to the center input of the effect track.

Depending on you DAW you can use a panner or hard routing to achieve this. Keep in mind that the routing for **Logic Pro X** differs from the one stated above. Its only valid for ProTools and Nuendo. Using the Double MS plugin as a send effect is the recommended method.

### As an insert effect

If you want to use the plugin as an insert effect, you first have to create an empty audio track. Depending on your DAW, the supported track I/O format varies. Look for your DAW below to get a more detailed description.

To be able to use the plugin as an insert effect, you have to create a multi channel .wav file which can be played back on the multi channel audio track. The signal order of the multi channel .wav file has to be the following:

1. Front facing cardioid
2. Figure of eight
3. Rear facing cardioid

Depending on your DAW the interpretation of the multi channel .wav file can vary. You can use the test files from this [website](#) to check the correct routing.

### Pro-Tools (AAX)

Using Pro-Tools and the AAX version, you can insert the plugin into a three channel track, a 5.1 or 6.0 track. Audio tracks in Pro Tools will change its number of input and output channels automatically depending on the inserted plugin. If you use a 3 channel track, the track will have 5 channels after inserting the Double MS plugin. The track has to have a multi channel .wav file with the Double MS signals in the correct order as explained above.

If you use it as a send effect, make sure that the input signals are routed as stated above.

### Nuendo / Cubase (VST3)

For the VST3 version, make sure that you insert the plugin into a 5.0, 5.1 or 6.0 audio track. The track itself must have a multi channel .wav file with the Double MS signals in the correct order as stated above.

When you use it as a send effect, you have to create a effect track with a 5.0, 5.1 or 6.0 channel configuration. Then you can use individual mono tracks and route the microphone signals to the effect track in the correct order as stated above.

## Logic (AU)

Apple Logic is unlike the other DAWs because they use a different internal channel ordering for surround signals. In the current version 10.xx the channel ordering for Logic and Double MS is as follows:

	<b>Logic</b>	<b>Double MS</b>
1.	Left	Left
2.	Right	Right
3.	Left Surround	Center
4.	Right Surround	LFE
5.	Center	Left Surround
6.	LFE	Right Surround

In order to make the Double MS plugin work correctly in Logic you have to apply a different channel routing. First insert the plugin into a 5.1 surround track in Logic. Then you have to create 3 mono tracks which hold the Double MS microphone signals. The mono signals then have to be routed to the Double MS plugin in the following way

1. Front facing cardioid microphone signal. Must be routed to the Left input of the 5.1 track.
2. Figure of eight microphone signal. Must be routed to the Right input of the 5.1 track.
3. Rear facing cardioid microphone signal. Must be routed to the Left Surround input of the 5.1 track.

You can use the internal surround panner in Logic to achieve this.

Since Logic uses the same routing for the output of a surround channel, you also have to change the output routing. You do this either by using a free channel matrix plugin (like [MChannelMatrix](#) by Melda) after the Double MS, or you have to adjust the output routing in the Logic I/O settings. Keep in mind that if you change the I/O configuration of Logic to match the Double MS plugin, other surround plugins will also be affected by this. As such, using the MChannelMatrix plugin is the recommended workaround. The output signals of the Double MS are in the table above.

## PARAMETERS

- **Polar Pattern:** Adjust the polar pattern for the center channel, the L/R stereo pair and Ls/Rs stereo pair. You can smoothly change between 0 (figure of eight) and 1 (Omni). You can also easily create different coincident microphone setups from X/Y to Blumlein. The presets are a good starting point.
- **Ambience Gain:** Adjust the amount of diffuse sound energy contained in the recording from -10dB to 10dB. The ambience gain affects the input signals directly and therefore alters all channels simultaneously. This control slider can be used to add more room sound to a recording without adding artificial reverb. In this algorithm the contained diffuse sound within the input signals is extracted and then increased or decreased.
- **Decorrelation:** Adjust the amount of decorrelation, which is applied only to the diffuse sound energy, from 0% to 100%. The decorrelation feature affects the input signals directly and therefore alters all channels simultaneously. This control can be used to enhance the envelopment of a recording.
- **Microphone Angle:** Opening angle between the L/R stereo pair as well as the Ls/Rs stereo pair.
- **Rotate:** Adjusts rotation of the whole virtual microphone setup from -180° to 180°. The center channel will point exactly to this location. This can be used to compensate for suboptimal microphone placement or sound design.
- **Surround Delay:** Delays the signal of Ls/Rs stereo pair from 10ms to 100ms. This can be used to optimize the front/back localization and increases the listening area. You can activate/deactivate the delay by pressing the black square.
- **Surround High Cut:** This is a first-order high shelf filter with -10dB gain. You can adjust the corner frequency from 2 kHz to 20 kHz. The filter is applied to the surround signals to simulate high frequency loss due to air dissipation. You can activate/deactivate the high shelf by pressing the black square.
- **Presets:** Select between different optimized decodings for Stereo and Surround.
- **Input Level Meters:** The input level meters reflect the level of the Double MS input signals.
- **Output Gain:** You can adjust the output gain for L/R, Ls/Rs and the C channel from -10dB to +10dB. The level is also represented in the polar plot. By pressing the M in the black square you can mute or unmute specific output channel groups
- **Output Level Meters:** The output level meters show the level of the decoded signals, which the plugin outputs to the DAW.

### Plugin Alliance Toolbar

- **“Key” Icon:** Opens the plugin Activation Dialog.
- **“?” Icon:** Opens a dialog through which one can access the plugin’s help documentation, online product page, or any available updates.
- **“\$” Icon (when applicable):** If you’ve purchased your plugin using the Plugin Alliance Installment Payments option, the “\$” icon links to your account so you can make a payment on your financed License.



## CHANGELOG

### Version 1.2.0

- Added support for universal macOS binary (x86\_64 and arm64)
- Min osx version set to 10.12 (macOS Sierra)
- AAX update to 2.4.0
- boost update to 1.7.8

### Version 1.1.0

- Added smooth bypass
- Fixed osx crash in Plugin Unit Test From Steinbergs VST3 Plugin Tests App
- Plugin Alliance Toolbar new Logo
- Disabled Screen new graphics with hoovering
- BXLicenser update 5.1
- VST support removed; only VST3 now
- AAX update to 2.3.2
- JUCE update to 6.0.8
- boost update to 1.7.3

### Version 1.0.0

Initial Release