

PolarDesigner

Manual



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PolarDesigner allows you to smoothly control the polar pattern of your Austrian Audio OC818 or any other dual-diaphragm dual-output microphone in up to five frequency bands.

PolarDesigner is not only used by engineers to gain access to the microphone's directivity in a versatile and unique way, but also by artists shaping their sounds creatively.

Setup your OC818:

Connect the front-diaphragm signal (XLR out) to input 1/L of your audio interface, the rear-diaphragm (accessible via the OCC8 mini XLR cable) to input 2/R and set the polar pattern switch to the position showing the two cardioids. Please note: the front-diaphragm of OC818 is on the side showing the Austrian Audio logo.

Overview

- 2 **Compare**
set and compare two settings of PolarDesigner
- 3 **Zero latency**
deactivates all filtering, eliminates latency for real time application
- 4 **Preset**
save and load preset files
- 5 **Pattern view**
shows the selected polar pattern for each active band

- 1 **Number of bands**
choose between one to five frequency bands in which the polar pattern can be controlled

- 6 **Equalization control**
apply free-field or diffuse-field equalization to your OC818

- 7 **Proximity control**
modify the impact of the proximity effect across polar patterns

- 8 **Terminator control**
automatically find the ideal polar pattern to terminate spill

- 9 **Sync group**
synchronise PolarDesigner instances across different tracks

- 10 **Gain/Solo/Mute**
set gain and solo/mute for each frequency band

- 11 **Directivity panel**
set polar patterns and band crossover frequencies

- Polar pattern trim**
adjust your frequency dependent polar pattern



Number of bands

1

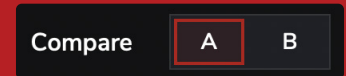
Get access to your microphone's polar pattern in one to five frequency bands. You will immediately see the the pattern views as well as the directivity panel change.



Compare

2

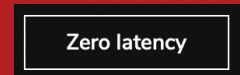
Set and compare two settings of PolarDesigner. Please note: if you use the AB function of your DAW please do not use the Compare function of PolarDesigner (and vice versa). Either use the AB of your DAW or PolarDesigner.



Zero latency mode

3

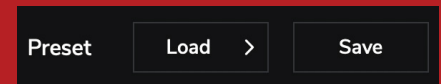
Use the zero latency mode for real-time applications such as monitoring during recording or in live sound. When activated, PolarDesigner will not cause any additional latency. Activating the zero latency mode deactivates all filtering, i.e. only broadband polar patterns can be set.



Preset

4

Save and load your favourite PolarDesigner settings. Use the slide out menu to manage your presets. Show colleagues and friends how you use PolarDesigner to realise your own unique sounds by simply sending them a preset file.



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Pattern view

Equalization control



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5 The pattern view displays the currently selected polar pattern for each active frequency band. The pattern colour makes it easy to determine the corresponding drag-line in the directivity panel and the corresponding sliders in the band slider section. Frequency bands can be deselected from any pattern control by clicking on the pattern view icon.



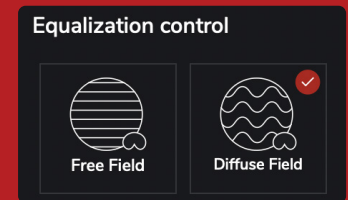
6 Apply free-field or diffuse-field equalization to your OC818. These filters are designed specifically for use with the OC818. Both equalisation techniques aim at generating a polar-pattern-independent frequency response.

Although different polar patterns have different sonic characteristics you might want to change the directionality of the microphone without changing the sound. Equalization control enables you to do that. As reference we use the sound of the microphone in cardioid mode.

The free-field filter matches the sound of your custom polar pattern to the reference for recordings in free-field conditions, i.e. recordings of frontal sources in non-reverberant environments.

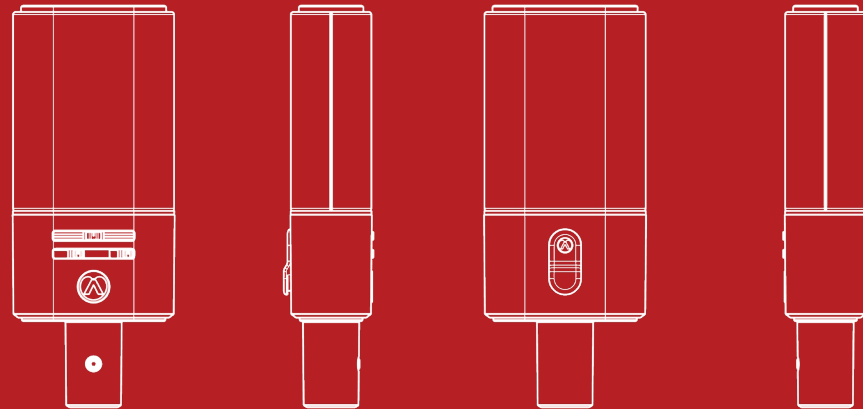
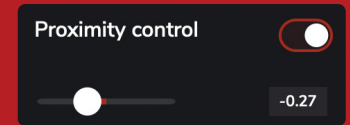
The diffuse-field filter does the same for non-frontal sources or recordings in reverberant environments.

We encourage you to try them out and listen to the results. Please note that these filters add an additional latency of 11ms and are therefore automatically disabled in zero-latency mode.



Proximity control

7 The proximity effect creates a low-frequency boost for close sources recorded with pressure-gradient microphones (i.e. all microphones which have non-omnidirectional polar patterns). This bass boost gets stronger with closer sources and more directive polar patterns. When recording close sources, you will notice that the bass boost will be strongest when you choose the figure-of-eight pattern and will not be present in case of the omnidirectional polar pattern. However, you can use the proximity control to either apply a bass boost to the omnidirectional pattern (positive values) or to remove the bass boost from the more directive patterns (negative values). Ideally, the proximity control enables you to obtain constant bass boost (or constantly no bass boost) across all polar patterns. As the underlying filter is an infinite impulse response (IIR) filter, the proximity control does not add additional latency to your signal.



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Terminator control

8 The terminator control - of course the name hints to our favourite Austrian cyborg - is not about killing Sarah Connor, but about terminating spill (undesired crosstalk) from your recording.

Three different modes help you getting the most out of your signal: Click on „Terminate Spill“ and Terminator control will guide you through the process. After clicking the button, it will ask you to play back the spill. Choose a section of undesired signal (feel free to loop short parts) and let the algorithm analyze the signal for a couple of seconds. As soon as the algorithm is done with analysis it asks you to stop the playback. The algorithm will immediately set the polar pattern which minimizes the energy of the tracked signal.

Alternatively, click „Maximize Target“ and play back the desired signal. After a couple of seconds, the algorithm asks you to stop play back and sets the polar pattern which maximizes the energy of the tracked signal.

Best results can be achieved by going one step further: Click on „Max Target-to-spill“ and run through the same process as described above. You will be asked to perform both steps „Terminate Spill“ and „Maximize Target“. Finally, hit the „Apply Max Target-to-spill“ button and the algorithm will set the polar pattern which maximizes the target-to-spill energy ratio.

Termination control detects spill and target through the averaged level. It averages during acquiring the signals. Make sure to play the desired/undesired signal within this timeslot.

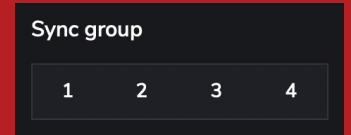


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Sync group

9

The sync-channel section helps you to synchronize PolarDesigner instances across different tracks. Simply choose the same sync-channel on all PolarDesigner instances to be synchronized, and you will see all synced instances reacting to parameter changes applied to a single instance.

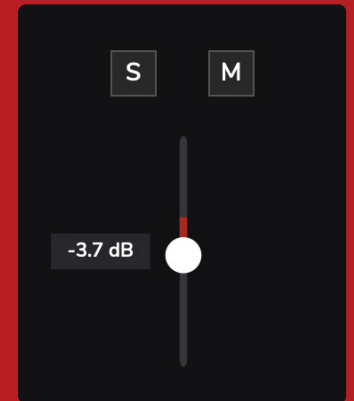


A little warning: The last selected PolarDesigner instance in the Sync group will define the settings of your Sync group. We recommend to start adjusting the parameters after setting up the Sync groups.

Gain/Solo/Mute

10

In this section you can set gains and Solo/Mute for each frequency band.



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Directivity panel and Polar pattern trim



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1

PolarDesigner splits your microphone signal into up to five frequency bands using linear-phase filters. The filters generate a latency of 4.2 ms (corresponds to 200 samples @ 48 kHz or 184 samples @ 44.1 kHz) which is automatically compensated for by your DAW.

Drag the horizontal lines to change the polar pattern in each frequency band. During drag they will lock-in to common polar patterns like omni and cardioid.

Use the polar pattern trim wheel on the right to change polar patterns across all frequency bands at once. Alternatively, click on the small pattern symbols left of the view to set the polar patterns of all bands to one of these commonly used patterns.

Drag the thick vertical grey lines to change the crossover frequencies determining the band ranges.

Hovering above the vertical lines will show you the current crossover frequency. Please notice: Crossover frequencies are limited to a certain range to prevent filter bands from overlapping or coming too close.



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For further questions please contact support@austrianaudio.com



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