

# PolarDesigner

## Manual



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# 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.

Connect the front-diaphragm signal (XLR out) to input 1/L and the rear-diaphragm (accessible via the adapter cable) to input 2/R.

**1** **band control**  
choose between one to five frequency bands in which the polar pattern can be controlled

**2** **pattern view**  
shows the selected polar pattern for each active band

**3** **zero latency mode**  
deactivates all filtering, monitor your recording without latency

**4** **preset control**  
save and load preset files

**5** **equalisation control**  
apply free-field or diffuse-field equalisation to your OC818

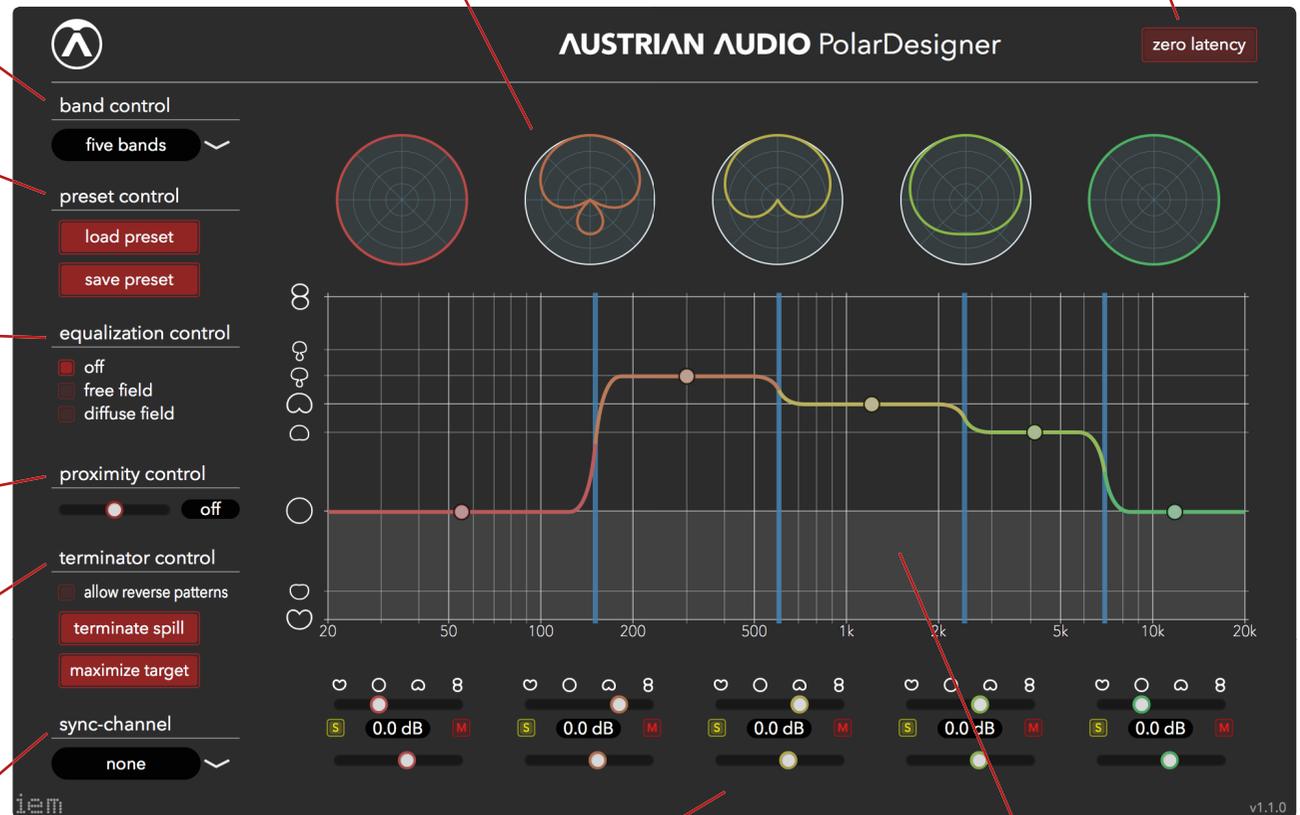
**6** **proximity control**  
modify the impact of the proximity effect across polar patterns

**7** **terminator control**  
automatically find the ideal polar pattern to terminate spill or maximise a target signal

**8** **sync-channel**  
synchronise PolarDesigner instances across different tracks

**9** **band slider sections**  
set polar pattern, gain and solo/mute for each frequency band

**10** **directivity panel**  
set polar patterns and band crossover frequencies



band control

**1** Get access to your microphone's polar pattern in one to five frequency bands. Use the dropdown menu to change the number of active bands. You will immediately see the the pattern views as well as the directivity panel change.



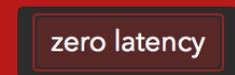
pattern view

**2** 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.



zero-latency mode

**3** Use the zero-latency mode for monitoring during recording. 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 control

**4** Save and load your favourite PolarDesigner settings. 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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## equalisation control

## proximity control



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# 5

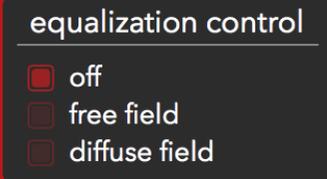
Apply free-field or diffuse-field equalisation to your OC818 recordings. These filters are designed specifically for use with the OC818. Both equalisation techniques aim at generating a polar-pattern-independent frequency response.

Although different polar patterns have different sonic characteristics you might want to change the directionality of the microphone without changing the sound. Equalisation 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.



# 6

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.



## terminator control

**7** 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. Two different modes help you getting the most out of your signal:

Click on „terminate spill“ during playback of an undesired signal (feel free to loop short parts) and let the algorithm analyse the signal for a couple of seconds.

Then click „terminate“ on the overlay which appeared over the directivity panel and the algorithm will immediately set the polar pattern which minimises the energy of the tracked signal.

Alternatively, click „maximize signal“ during playback of a desired signal. After clicking „maximize“ on the appearing overlay, the algorithm will set the polar pattern which maximises the energy of the tracked signal.

Best results can be achieved by going one step further: After you executed „terminate spill“ or „maximize signal“, you can use the other option („maximize signal“ or „terminate spill“) and on the overlay a second button will be enabled, labelled „max target-to-spill“. After clicking this button, the algorithm will set the polar pattern which maximises the target-to-spill energy ratio.

Termination control detects spill and target through the averaged level. It averages as soon as “terminate spill” or “maximize target” is activated and stops when “terminate” or “maximize” is clicked on the popup menu. Make sure to play the desired/undesired signal within this timeslot.

Note that the polar patterns found by the algorithm are by default limited to patterns pointing towards the front. To also allow for backwards-facing polar patterns, simply activate the „allow reverse patterns“ toggle.

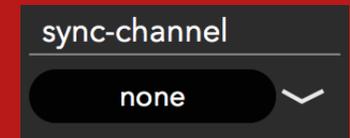


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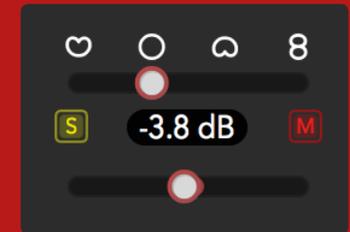
## sync-channel

## band slider section

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

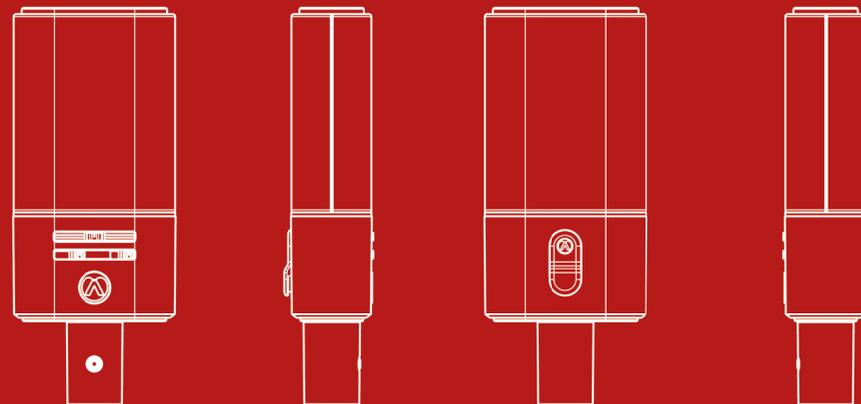


9 The band sliders are an alternative interface to change the band's polar pattern (upper slider) but also allow to change the gain of the respective band (lower slider) and to solo or mute the band using the corresponding buttons.



The polar pattern symbols on top also allow to directly set the pattern to reverse-cardioid, omni, cardioid and figure-of-eight, respectively.

When hovering over the polar pattern slider, a tooltip allows to set the polar pattern numerically, accepting values between -0.5 (reverse-cardioid) and +1 (figure-of-eight). The text field in the middle allows you to set the band gain numerically in a range between -24 dB and +18 dB.



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## directivity panel



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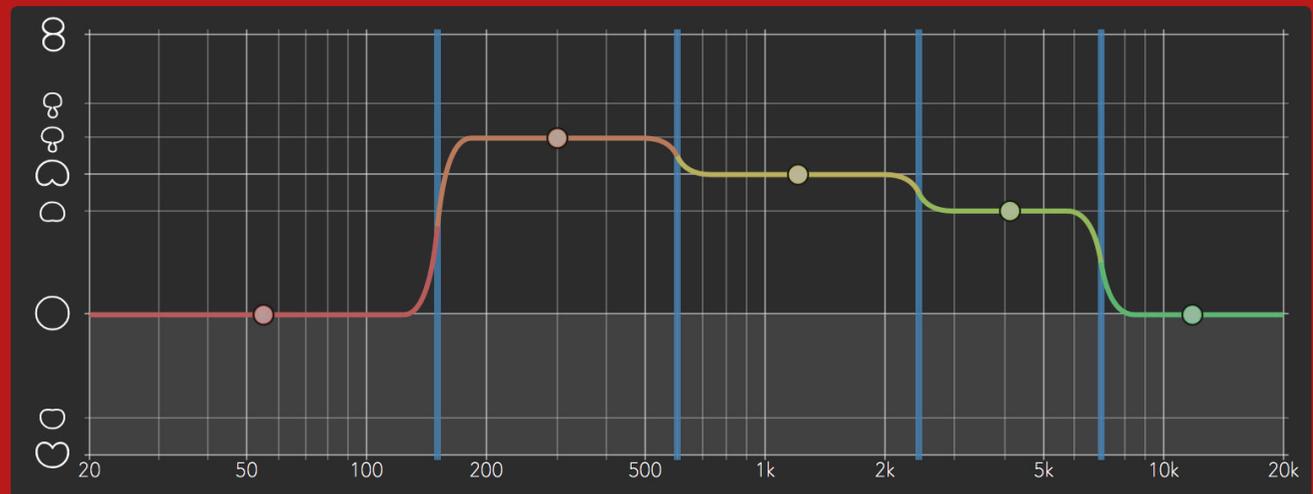
**10** PolarDesigner splits your microphone signal into up to five frequency bands using linear-phase filters. The filters generate a latency of 4.2 ms (corresponds to 200 samples @ 48 kHz or 184 samples @ 44.1 kHz) which is automatically compensated for by your DAW.

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.

Hold down „alt“ during drag 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 vertical blue lines to change the crossover frequencies determining the band ranges.

Notice the tooltip window which appears when you hover over one of these blue lines. It shows the current crossover frequency in Hz and allows you to enter a value to set the crossover frequency numerically. The entered value will only be accepted if it is in the current valid frequency range to prevent filter bands from overlapping or coming to close.



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For further questions please contact [support@austrianaudio.com](mailto:support@austrianaudio.com)



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