Quick guide to the SCHOEPS Polarflex technique

v8 – 28.11.2011

1. Microphone setup

Arrange an omni and a figure-8 microphone such that the membranes are coincident, *i.e.* there should be no offset in the horizontal plane for front-arriving sound sources. For two-channel stereo, two Polarflex microphone pairs should be set up.

Two options are shown here. When using CCM microphones, the A2P CCM Polarflex microphone arrangement is the most elegant solution:

Polarflex microphone A2P CCM consisting of suspension and the two microphones CCM 2S and CCM 8

When using Colette microphones, a setup using the capsule swivel GVC is recommended:

Polarflex arrangements using the SCHOEPS Colette series:

- *CMC 6 + MK 8*

- *CMC 6 + GVC + MK 2S*

- *SG 22 mod double clip*

If the "Straus-Paket" variant is chosen rather than the classical Polarflex, an omni and a cardioid should be set up side by side. In the A2P CCM arrangement a CCM 4V would be used instead of the CCM 8, while with Colette microphones, a simple double clip such as the SG 22 mod can be used:

"Straus-Paket" consisting of MK 2H omni and MK 4 cardioid (+CMC 6) with suspension AMS.
For the CCM series, use the suspension SGMSC

2. Routing VST, VST3, RTAS

Mono mode:

The two microphone signals are separately recorded onto two tracks of the DAW. These tracks are routed to a stereo bus in which the plug-in (Mono version) is inserted:

Omni → Input 1
Fig-8 /Cardioid → Input 2

Stereo mode:

The four microphone signals are separately recorded onto four tracks of the DAW. These tracks are routed to a multichannel (e.g. Quadro) bus in which the plug-in (Stereo version) is inserted.

L Omni → Input 1
R Omni → Input 2

L Fig-8 → Input 3
R Fig-8 → Input 4

Output 1, 2 Output L, R

Pyramix: To avoid the automatic routing of the GPS, select the GPS 4 channel with "no type".

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3. Routing AU

- Create a stereo or mono channel for the omni and one for the figure eight signal.

- Remove the output of the figure eight channel

- Insert the Polarflex plug-in into the omni channel

- In the sidechain selector of the plug-in window, select the figure eight channel

Polarflex AU in Logic: Using the plug-ins "Polarflex" and "LatencyCompensation"

Some hosts (for instance Logic 8 & 9) do not support latency compensation on side chain inputs. Therefore a dedicated plug-in called "LatencyCompensation" is provided, which automatically adjusts the latency of the figure eight channel. This plug-in just needs to be inserted into the figure eight channel. Please make sure to remove the output of the figure eight channel as the latency compensation is adjusted to fit the input of the Polarflex plug-in only.

4. Installation of the plug-in

The Plug-in is available *for free*:
www.schoeps.de/polarflex

The installation of the plug-in works as follows: Choose the corresponding archive (Windows 32bit, Windows 64 bit, Mac), unzip it, double-click the installer file (.msi) and follow the commands. The installer automatically installs all formats into the default plug-in folders. The VST version is installed to „Steinberg/vstplugins" in the "Program Files" folder. These formats are available: VST3, VST, RTAS, AU

5. How to use the plug-in

You will see very quickly how easy it is to use the plug-in.

Controls:

- **Microphone Selection:** Choose your omni type and the figure-8 or cardioid

- **Input level meters:** In the mono version there are 2 level meters corresponding to inputs 1 and 2. The stereo version offers 4 inputs and 4 level meters. The order of the inputs corresponds to the order of the level meters. (➔ 2. Routing)

- **Gain:** Use the gain knobs for adjusting the levels according to the differences in microphone sensitivity.

- **Solo**: In Pre mode you can monitor the single input signals, in the Post mode you will hear the portions of the input signal that are mixed into the output signal

- **EQ**:
  Low frequency boost in the figure-8 channel(s) for making up the inherent LF loss of the figure-8 capsule

- **Mixing ratio buttons**:
  In the large window, the thick gray line with the three buttons denotes the mixing ratio between your omni (top) and figure-8/cardioid capsule (bottom) throughout the frequency range.
  You can move and reshape the line by pulling the three buttons up/down as well as left/right. You can listen to the result in real-time.
  While clicking on the buttons, you will see the exact mixing ratio in the bottom left corner of the frequency chart window.

- **Polar pattern**:
  The three polar pattern symbols denote the chosen polar patterns at 100 Hz, 1000 Hz and 10 kHz.

- **Frequency graphs:**
  The blue graphs show the on-axis (solid blue) and off-axis (light blue) frequency responses. Note that as the directivity increases, the distance between these two curves will also increase.

6. Examples

- When the gray line is all the way at the top of the window, only the omni signal is present in the output.

- When the line is in the middle, the result will be a cardioid, (the sum of an omni and a figure-8 pattern mixed in equal proportions).

- If you choose a wide cardioid at low frequencies, a cardioid at middle frequencies and a hypercardioid at high frequencies, the sound will mimic that of a dual-membrane, large-diaphragm condenser microphone.

- Try different settings in stereo mode. By altering the mixing ratio, the correlation of the diffuse recorded sound is varied in real time. This offers a powerful means to vary the room sound of your stereo pickup.

7. Applications

The Polarflex technique has been successfully used in numerous applications. Its particular strength is the possibility of fine-tuning the sound after the microphones have been installed, or even after the recording has been made.

Mono

As a vocal microphone it offers distinct possibilities for playing around with the sound color and proximity effect. Being able to bring in more or less diffuse field in a certain frequency band offers the possibility to manipulate the perceived sound color in a very elegant way. For example, a setting as in the screenshot above leads to the typical "warm" sound that resembles a large-diaphragm microphone. The reason is that some old, double-diaphragm microphones do have a wider polar pattern at low frequencies and therefore record more low frequencies from the room.

Stereo

Polarflex is ideal for use as a spot or main microphone pair. By altering the polar patterns the stereophonic image can be changed and thus optimized with the microphone already installed. In particular, it makes sense to use more Fig-8 portions at lower frequencies. The channel separation at lower frequencies is important for spatial perception. A "small a/b" setup of two omnidirectional microphones actually has a too low channel separation at low frequencies due to their long wavelengths relative to the microphone spacing.

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Choice of ap-
plied micro-
phone capsules

Input signals

Buttons to alter the
mixing ratio

Resulting polar
pattern in each
frequency band

Gain
adjustment

Exact mixing ratio at the
respective frequency band

On-axis (solid blue) and
off-axis (light blue) fre-
quency responses