VMG-01

Digitales Verzögerungs-
und Verzögerungsmessgerät

- English Manual v1.8 -

Introduction

The VMG-01 is a sample-accurate delay and delay measuring device. It can be used to induce delays as short as one sample and as long as 99,999 samples to any stereo signal flow while operating in true stereo. It also features a test signal output and a measuring input to test devices for their inherent latency.
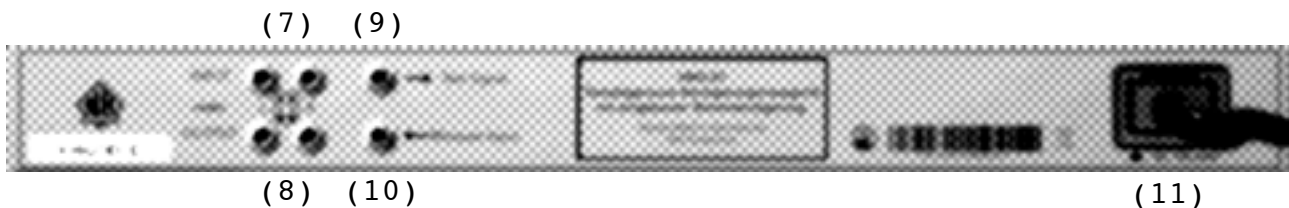
Overview

Front Panel

1) On/Off/Bypass Button
2) Sample Rate Display
3) Positive Delay Change
4) Delay / Measurement Display
5) Negative Delay Change
6) Measure button

Back Panel

7) Stereo/Dual Mono Audio Input
8) Stereo/Dual Mono Audio Output
9) Test Signal Output
10) Measurement Input
11) Power Input

Operation

As a sample delay

To use the VMG-01 as a sample delay, simply connect your audio
signal to the audio inputs (7) and connect the audio outputs (8)
to the inputs of your mixer. Set the power switch (1) to "On" and
set the desired delay using the buttons (3,5) next to the
measurement display (4). The display will show the delay in
samples, the current sample rate is displayed in the sample rate
display (2).

To compare the delayed and undelayed signal, use the power switch
"Bypass" setting. Note that because the VMG-01 works on the sample
level, audible clicks might occurr while changing the delay time
while audio is running through the delay unit.

As a latency measuring device

To use the VMG-01 as a sample accurate latency measuring device
connect the test signal output (9) to the audio input of a device
that you want to measure. Connect the audio output of the device
to the measuring input of the VMG-01 (10). Now press the
measurement button (6) until you see a value displayed in the
display (4).

Measuring Troubleshooting

The VMG-01 can measure up to 99,999 samples delay, if the delay is
larger than that, the display will still show "99999".

If the device cannot receive the test signal back it will not show
a value until you release the button.

If you think it should be able to receive its test signal back,
make sure your device does not excessively lower the volume of the
signal going through it. If it does, raise the output volume of
the device to get a proper measurement.

If the VMG-01 reports a shorter delay than you expect, for example
zero, then make sure there is no other audio going through the
signal chain when measuring. Also make sure the device doesn't
create high volume audio output by itself, maybe lower the audio
output of the device.

The output volume of the test signal is -14dBFS and the input
signal should ideally be between -20dBFS and -14dBFS.

Usage Examples

Latency Compensation

Many audio devices induce a short delay into the signal flow to
better handle for example transients and fourier transforms. When
such signals are mixed back into a mix of, e.g., a drum set,
timing and phasing issues arise.

As the induced delay is inherent to the device the only chance to
get the tracks back in sync is to induce the same delay into the
signal flow of the other instruments. Of course, the original
devices latency needs to be known as accurately as possible. This
is where the VMG-01 comes in.

By using the VMG-01 test signal and measuring input, you can
measure the latency of your devices signal flow and induce the
same latency into the other channels.

Fine Grained Comb Filtering and Doubling

Due to the fine resolution of the delay parameter it is possible
to apply very specific comb filtering and doubling effects using
the VMG-01.

For comb filtering effects, split the signal of any mix channel
and apply a VMG-01 to the split signal. Now you can fine-tune the
delay between original and copy causing comb filtering effects
from very subtle to strong coloration.

For doubling and using the Haas Effect to position and widen the
stereo image of a signal, split the signal of a mono channel and
apply a VMG-01 to the split signal. Pan the original signal hard
left and the split signal hard right. When you raise the delay
value to about 440 at 44,100 Hz sampling rate you start hearing
the Haas Effect and the signal will both sound wider and start to
move to the left speaker the more you raise the delay. Compensate
the positioning using the volume fader of the original and delayed
signal as a balance control.

Device Handling

The VMG-01 has been hand-crafted in Germany and is guaranteed to
operate consistently over a lifetime without part aging. A minimum
of heat dissipation makes it ideal for rack installation even in
cluttered racks. Clean the outside with a dry, clean cloth solely.

VMG-01 (c) 2013 Normen Hansen Tontechnik