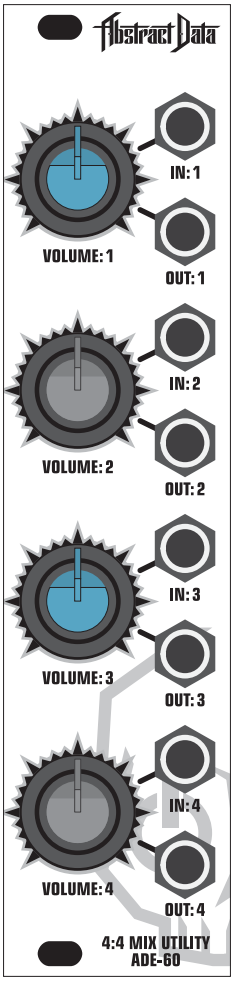
ADE-60 4:4 MIX UTILITY

Cascading, 4-Channel, Mix & CV Utility with user-configurable options for 2x Gain, Attenuversion, Biasing & CV.



USER GUIDE

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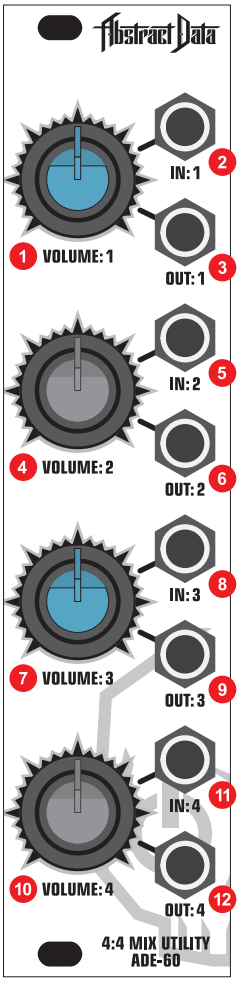
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1) Module Overview

- The ADE-60 is a highly-configurable mixing and CV (Control Voltage) utility.
- Each channel gives options for 2x Gain, Attenuversion and CV/Biasing which can be configured via 3 rear panel connectors allowing users to create a configuration that suits their own requirements.
- The mixer can be used in any combination from a standard 4-input/1-output summing mixer to 4 individual 1-input/1-output Attenuators or stand-alone CV sources.
- Plugging a cable into any of the output sockets removes any of the previous signal inputs from the mix at the outputs that follow it.
- Used in conjunction with the Gain and Attenuversion settings - the CV/Biasing option can provide CV in the following ranges on any and/or all Outputs: 0-5V; 0-10V; +/-5V; +/-10V.
- The module is supplied with 2 sets of knobs - 4 Grey and 4 Blue to allow the user to denote different combinations of functionality.
- The ADE-60 is capable of outputting both CV signals and high-gain audio signals - please take care not to damage speakers, headphones - or ears! - with configurations that deal with these signal types.
- The ADE-60 has reverse-voltage protection built in - but please pay attention to the power supply and connection guidelines on Page 3 of this manual.

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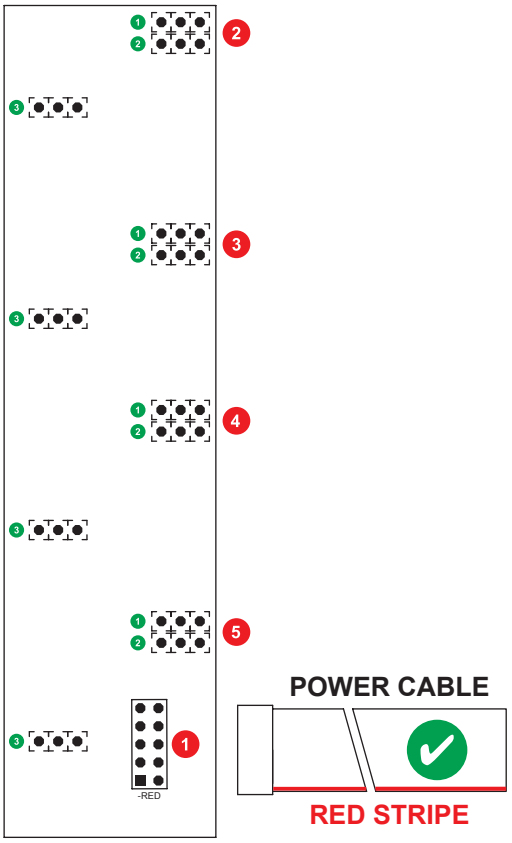
2) Front Panel



1	**VOLUME: 1**	Sets the volume and the level of user-defined functions for channel 1
2	**IN: 1**	Signal input for channel 1
3	**OUT: 1**	Signal output for channel 1
4	**VOLUME: 2**	Sets the volume and the level of user-defined functions for channel 2
5	**IN: 2**	Signal input for channel 2
6	**OUT: 2**	Signal output for channel 2 or mix output of previous unpatched channels
7	**VOLUME: 3**	Sets the volume and the level of user-defined functions for channel 3
8	**IN: 3**	Signal input for channel 3
9	**OUT: 3**	Signal output for channel 3 or mix output of previous unpatched channels
10	**VOLUME: 4**	Sets the volume and the level of user-defined functions for channel 4
11	**IN: 4**	Signal input for channel 4
12	**OUT: 4**	Signal output for channel 4 or mix output of previous unpatched channels

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3) Rear Connections



1	**POWER CONNECTION:**	10-16 pin Eurorack power connection
2	**CHANNEL 1 USER CONFIG:**	❶ Attenuversion ❷ Gain ❸ Biasing settings for channel 1
3	**CHANNEL 2 USER CONFIG:**	❶ Attenuversion ❷ Gain ❸ Biasing settings for channel 2
4	**CHANNEL 3 USER CONFIG:**	❶ Attenuversion ❷ Gain ❸ Biasing settings for channel 3
5	**CHANNEL 4 USER CONFIG:**	❶ Attenuversion ❷ Gain ❸ Biasing settings for channel 4

PRECAUTIONS: Only connect the power cable to the power connection as shown.

DO NOT CONNECT THE POWER CABLE TO ANY OTHER PORT!

The ADE-60 uses the Doepfer standard for power connection and cable orientation.

The RED stripe on the supplied power cable connects to the NEGATIVE (-12V) rail on the ADE-60 with the RED stripe facing DOWN. This is marked on the back of the ADE-60 PCB as “– RED”.

The ADE-60 has diode and polyfuse protection built in but an incorrectly connected cable may still cause permanent damage to the module or the power supply.

The rear panel of the ADE-60 has exposed parts and connections. Please ensure when handling the ADE-60 that the unit is held by the sides of the front panel or the sides of the PCB (Printed Circuit Board).

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4) Quick Start

1) USER CONFIGURATION

Make sure all 12x black plastic jumper jonnectors are in place on the rear PCB on the left hand pair of the 3x pin headers.

2) INPUTS

Turn all 4x knobs fully counter-clockwise.

Connect an audio signal to IN:1

3) OUTPUTS

Connect the output of channel 4 to a suitable audio monitoring source.

Turn the VOLUME:1 knob clockwise to increase the volume of the signal at IN:1 to unity gain (at fully clockwise).

The audio signal at IN:1 is available at OUT:1-4.

Connecting a patch cable to OUT:1 will remove the signal at IN:1 from OUT:2-4.

Connecting a patch cable to OUT:2 will remove the signal at IN:1 from OUT:3-4.

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5) Inputs & Outputs

1) IN:1-4

The ADE-60 has 4 inputs - one for each of the four mixer channels.

An input at any channel will cascade to all of the following channels - until those signals hit an output socket that is patched.

This cascading design allows for any configuration from 1x 4-input mixer with a single output to 4x individual 1-input/1-output attenuators or any combination in between.

2) OUT:1-4

The ADE-60 has 4 outputs - one for each of the four mixer channels.

An output socket that is patched will output the summed signal from all previous channels with patched inputs and unpatched outputs.

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6) Knobs

1) VOLUME:1-4

Provides manual control over the attenuation of the input signal at the corresponding input.

When any of the 3 user-configurable settings are implemented this knob will also provide manual control over Gain, Attenuversion and CV/Biasing levels.

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7) Operation

1.1) 4-Input / 1-Output Mixer

Input 1.1 >	[IN:1]	
	[OUT:1]	
Input 1.2 >	[IN:2]	
	[OUT:2]	
Input 1.3 >	[IN:3]	
	[OUT:3]	
Input 1.4 >	[IN:4]	
	[OUT:4]	> Inputs 1-4

1.2) 4-Input + CV Bias / 1-Output

	[IN:1]	
CV >	[OUT:1]	
Input 1.2 >	[IN:2]	
	[OUT:2]	
Input 1.3 >	[IN:3]	
	[OUT:3]	
Input 1.4 >	[IN:4]	
	[OUT:4]	> Inputs 2-4 + CV Bias

These configurations show two variations on a 4-Input/1-Output summing mixer. In configuration 1.2, channel 1 is used with the CV option to provide a variable, positive bias to the output signal.

2.1) 2x 2-Input / 1-Output Mixers

Input 1.1 >	[IN:1]	
	[OUT:1]	
Input 1.2 >	[IN:2]	
	[OUT:2]	> Inputs 1-2
Input 2.1 >	[IN:3]	
	[OUT:3]	
Input 2.2 >	[IN:4]	
	[OUT:4]	> Inputs 3-4

2.2) 2x 2-Input + Gain/Inversion / 1-Output Mixers

Input 1.1 >	[IN:1]	
Gain >	[OUT:1]	
Input 1.2 >	[IN:2]	
	[OUT:2]	> Gained Input 1.1 + Input 1.2
Input 2.1 >	[IN:3]	
	[OUT:3]	
Input 2.2 >	[IN:4]	
Inversion >	[OUT:4]	> Input 2.1 + Inverted Input 2.2

These configurations show two variations on splitting the mixer into dual, 2 channel mixers. The second configuration provides a Gain option to the first input of the first mixer and an Inversion/Attenuversion option to the second input of the second mixer.

3.1) 4x 1-Input / 1-Output Attenuators

Input 1 >	[IN:1]	
	[OUT:1]	> Attenuated Input 1
Input 2 >	[IN:2]	
	[OUT:2]	> Attenuated Input 2
Input 3 >	[IN:3]	
	[OUT:3]	> Attenuated Input 3
Input 4 >	[IN:4]	
	[OUT:4]	> Attenuated Input 4

3.2) 4x CV Sources

	[IN:1]	
CV >	[OUT:1]	> 0-5V CV Output
	[IN:2]	
CV/Gain >	[OUT:2]	> 0-10V CV Output
	[IN:3]	
CV/Inversion >	[OUT:3]	> +/-5V CV Output
	[IN:4]	
CV/Inversion/Gain >	[OUT:4]	> +/-10V CV Output

These configurations show two variations on a 4 channel attenuator set-up. The first example gives four, independent attenuators - one for each mixer channel. The second uses the different options to provide 4 different, independent, CV sources.

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8) Specs

HARDWARE:	**Controls (Knobs):**	Volume 1:	Channel 1
		Volume 2:	Channel 2
		Volume 3:	Channel 3
		Volume 4:	Channel 4
	Inputs (Signal):	Input 1:	-5 to +5V AC/DC/CV
		Input 2:	-5 to +5V AC/DC/CV
		Input 3:	-5 to +5V AC/DC/CV
		Input 4:	-5 to +5V AC/DC/CV
	Outputs (Signal):	Output 1:	-10 to +10V AC/DC/CV
		Output 2:	-10 to +10V AC/DC/CV
		Output 3:	-10 to +10V AC/DC/CV
		Output 4:	-10 to +10V AC/DC/CV
	Power Requirements:	+/-12V:	10-16-pin IDC connector
	Current Draw:	+12V:	Approx. 55mA average
		-12V:	Approx. 45mA average
		+5V:	NA
	Dimensions:	Width:	6HP
		Depth:	28mm [Panel to IDC connector]
	Supplied Accessories:	Cable:	1x 10-16-pin, IDC
		Screws:	2x M3
		Jumpers:	2x spare connectors
		Knobs:	2x Blue
			2x Grey
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