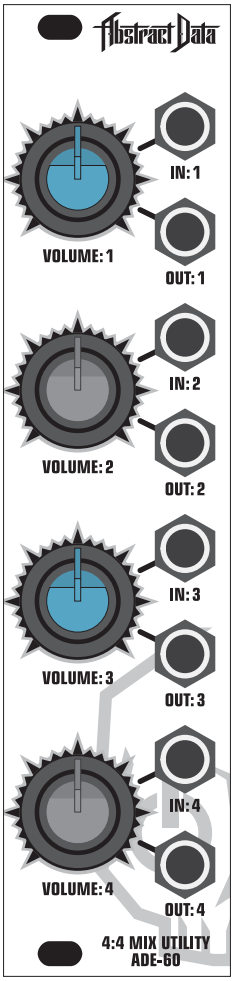
Abstract Data
INSTRUMENTS & EFFECTS
LONDON, ENGLAND

# ADE-60 4:4 MIX UTILITY

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




# USER GUIDE

 http://www.abstractdata.biz info@abstractdata.biz Version 1.0 October 2017

# Contents

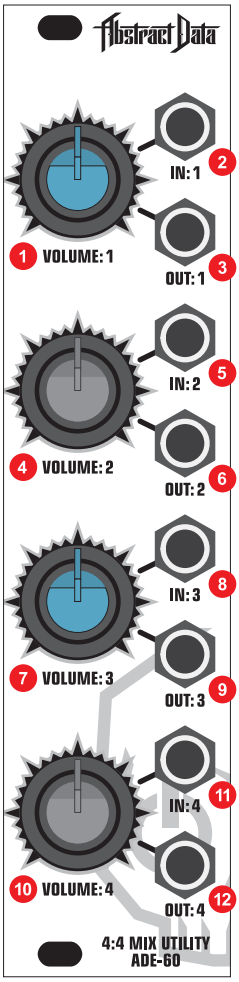
# 1: Module Overview



- The ADE-60 is a highly-configurable mixing and Control Voltage (CV) 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.

# 2: Front Panel

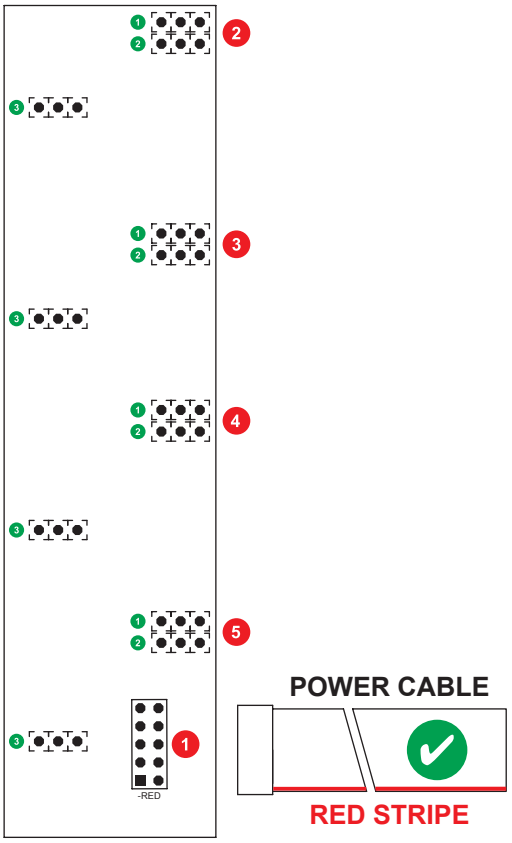





| | | |
|---|---|---|
| 1 | **VOLUME: 1** | Sets the volume and the level of user-defined functions for channel 1 |
| 2 | **IN: 1** | Signal input for channel 1 |
| 3 | **OUT: 1** | Signal output for channel 1 |
| 4 | **VOLUME: 2** | Sets the volume and the level of user-defined functions for channel 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 |

# 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 Printed Circuit Board (PCB).

# 4: Quick Start



**1) USER CONFIGURATION**

Make sure all 12x black plastic jumper jonnectors are in place on the rear Printed Circuit Board (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.

# 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.

# 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.

# 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.

# 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 cable |
| | | Screws: | 4x M3 |
| **CREDITS:** | **Beta Testing:** | Radek Rudnicki | |
| | | Ben Wilson | |

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