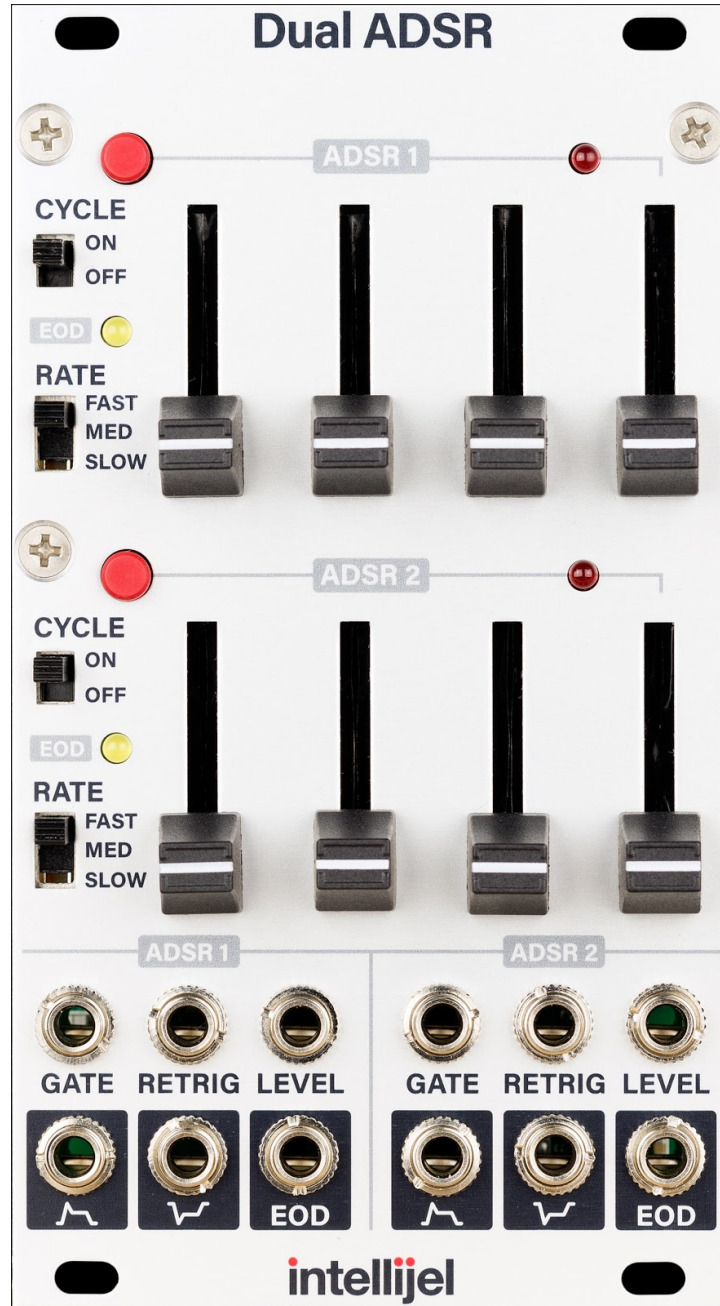


# Dual ADSR

Dual Slider-Based ADSR Envelope Generator



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## Compliance



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Intellijel Designs, Inc. could void the user's authority to operate the equipment.

Any digital equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.



This device meets the requirements of the following standards and directives:

EMC: 2014/30/EU

EN55032:2015 ; EN55103-2:2009 (EN55024) ; EN61000-3-2 ; EN61000-3-3

Low Voltage: 2014/35/EU

EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011

RoHS2: 2011/65/EU

WEEE: 2012/19/EU

## Installation

Intellijel Eurorack modules are designed to be used with a Eurorack-compatible case and power supply. We recommend you use Intellijel cases and power supplies.

Before installing a new module in your case, you must ensure your power supply has a free power header and sufficient available capacity to power the module:

- Sum up the specified +12V current draw for all modules, including the new one. Do the same for the -12 V and +5V current draw. The current draw will be specified in the manufacturer's technical specifications for each module.
- Compare each of the sums to specifications for your case's power supply.
- Only proceed with installation if none of the values exceeds the power supply's specifications. Otherwise you must remove modules to free up capacity or upgrade your power supply.

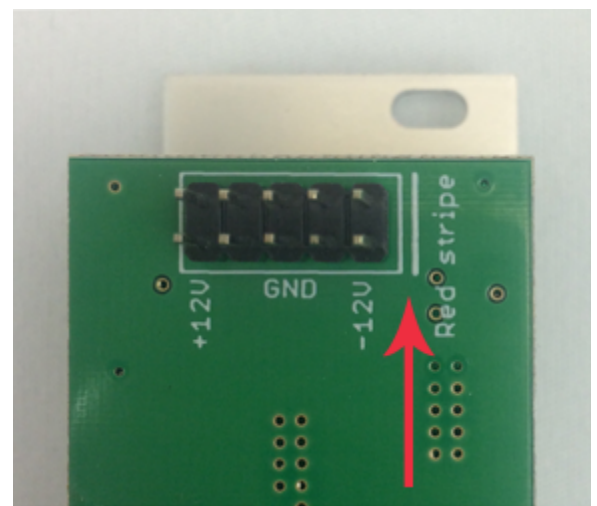
You will also need to ensure your case has enough free space (hp) to fit the new module. To prevent screws or other debris from falling into the case and shorting any electrical contacts, not leave gaps between adjacent modules, and cover all unused areas with blank panels. Similarly, do not use open frames or any other enclosure that exposes the backside of any module or the power distribution board.

You can use a tool like [ModularGrid](#) to assist in your planning. Failure to adequately power your modules may result in damage to your modules or power supply. If you are unsure, please [contact us](#) before proceeding.

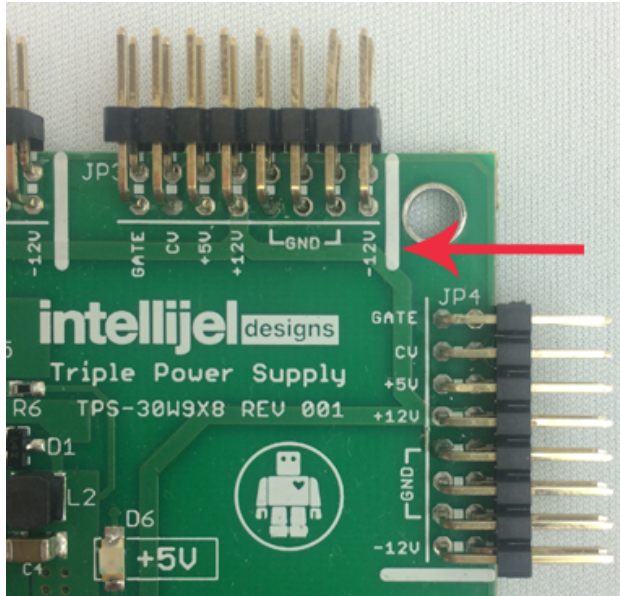
## Installing Your Module

When installing or removing a module from your case always turn off the power to the case and disconnect the power cable. Failure to do so may result in serious injury or equipment damage.

Ensure the 10-pin connector on the power cable is connected correctly to the module before proceeding. The red stripe on the cable must line up with the -12V pins on the module's power connector. The pins are indicated with the label -12V, a white stripe next to the connector, the words "red stripe", or some combination of those indicators.



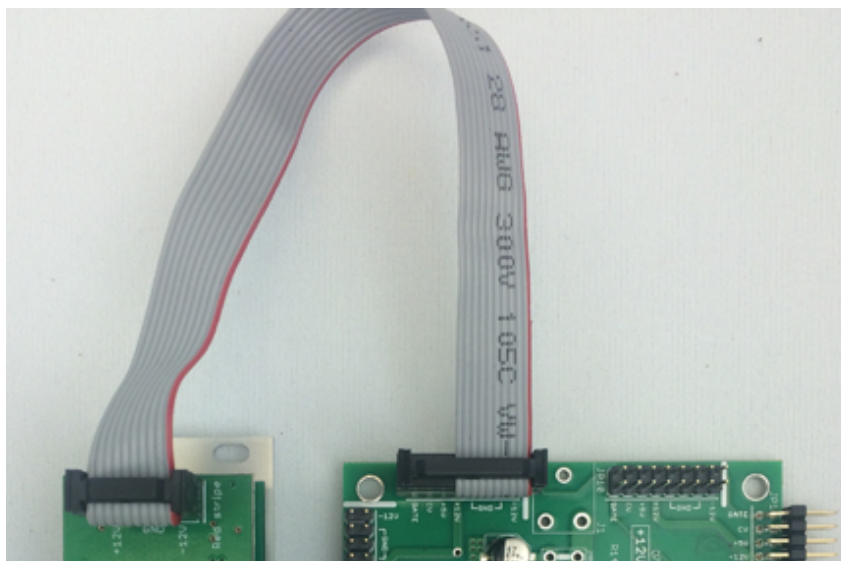
Most modules will come with the cable already connected but it is good to double check the orientation. Be aware that some modules may have headers that serve other purposes so ensure the cable is connected to the right one.



The other end of the cable, with a 16-pin connector, connects to the power bus board of your Eurorack case. Ensure the red stripe on the cable lines up with the -12V pins on the bus board. On Intellijel power supplies the pins are labelled with the label “-12V” and a thick white stripe:

If you are using another manufacturer’s power supply, check their documentation for instructions.

Once connected, the cabling between the module and power supply should resemble the picture below:



Before reconnecting power and turning on your modular system, double check that the ribbon cable is fully seated on both ends and that all the pins are correctly aligned. If the pins are misaligned in any direction or the ribbon is backwards you can cause damage to your module, power supply, or other modules.

After you have confirmed all the connections, you can reconnect the power cable and turn on your modular system. You should immediately check that all your modules have powered on and are functioning correctly. If you notice any anomalies, turn your system off right away and check your cabling again for mistakes.

## Overview

The Dual ADSR contains two ADSR (Attack Decay Sustain Release) envelope generators modelled after those found on many classic synthesizers. The envelope gates are normalised so they can be triggered from the same gate source or independently. The cycle switches allow the envelopes to be used as unipolar LFOs.

## Front Panel

The following describe one of the two envelopes. The functionality is identical for both ADSR 1 and ADSR 2 with the exception of the GATE input.

### Controls

#### 1. GATE BUTTON

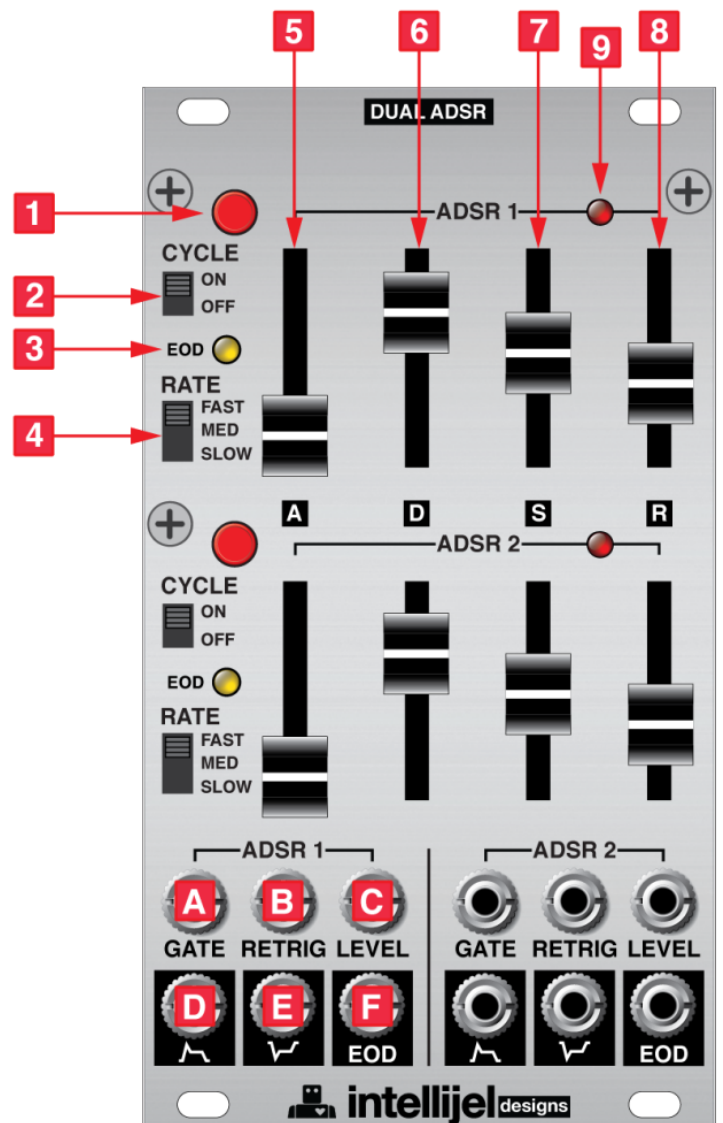
The gate button is normalised to the **GATE** input. Pressing and holding the button will activate the envelope in the same way as an incoming gate signal from a keyboard or sequencer. It provides a useful way to test out the envelope settings or to manually trigger the envelope during performance.

#### 2. CYCLE SWITCH

When in the ON position the end of the decay phase will start the attack phase again.

#### 3. EOD INDICATOR LED

This LED is lit when the decay phase of the envelope has completed and remains lit till the next time the attack phase begins. The EOD output gate will also be high at the same time.



#### 4. RATE SWITCH

The rate switch selects between three different ranges for the attack, decay, and release times. In FAST mode the maximum time for each stage is approximately 1 second. It is approximately 10 seconds in MED mode, and 1 minute in SLOW mode.

#### 5. A[TTACK]

This slider sets the duration of the envelope attack stage. This is the time it takes for the envelope level to go from zero to the maximum level. The duration is nearly zero with the slider at the bottom, and the longest when the slider is at the top. The length of the longest setting is set with the **RATE** switch.

#### 6. D[ECAY]

This slider sets the duration of the envelope decay stage. This is the time it takes for the envelope level to go from the maximum to the sustain level. The length of the longest setting is set with the **RATE** switch.

#### 7. S[USTAIN]

This slider sets the level of the sustain stage. It is 0 V at the bottom and 5 V at the top.

#### 8. R[ELEASE]

This slider sets the duration of the envelope release stage. This is the time it takes the envelope to go from the sustain level back to 0 after the gate is released. The length of the longest setting is set with the **RATE** switch.

#### 9. LEVEL INDICATOR

The brightness of this LED indicates the level of the envelope.

## Inputs & Outputs

### A. GATE

While the gate input is high the envelope moves through its stages until it hits the sustain stage. If at any time the gate goes low the envelope will enter the release stage.

For ADSR 2 this input is normalled to the input of ADSR 1 so that when no cable is connected the GATE of ADSR 2, a gate signal at ADSR 1 can trigger both envelopes.

### B. RETRIG

When a trigger is received at this input while the gate is high it resets the envelope back to 0 and starts the attack phase again.

**C. LEVEL**

This input expects a 0 to 5 V signal and controls the overall level of the envelope via a built-in linear VCA. It is normalised to a 5 V source so when nothing is connected the envelope uses its maximum range.

**D. OUTPUT**

This is the primary envelope output. The level is from 0 to 5 V.

**E. INVERTED OUTPUT**

This output provides the inverted version of the envelope, from 0 to -5 V.

**F. EOD**

This gate output goes high once the envelope completes the decay phase and remains high until the next attack phase.

## Envelope Times

| MODE   | MINIMUM ATTACK TIME | MAXIMUM ATTACK TIME | MINIMUM DECAY/RELEASE TIME | MAXIMUM DECAY/RELEASE TIME |
|--------|---------------------|---------------------|----------------------------|----------------------------|
| Fast   | 0.2 ms              | 1.5 s               | 0.6 ms                     | 2.5 s                      |
| Medium | 1.8 ms              | 10 s                | 3.5 ms                     | 10 s                       |
| Slow   | 9.3 ms              | 60 s                | 30 ms                      | 60 s                       |

NOTE: Times are approximate and will vary from unit to unit due to component tolerances.

## Technical Specifications

|               |                              |
|---------------|------------------------------|
| Width         | 14 hp                        |
| Maximum Depth | 38 mm                        |
| Current Draw  | 60 mA @ +12V<br>49 mA @ -12V |