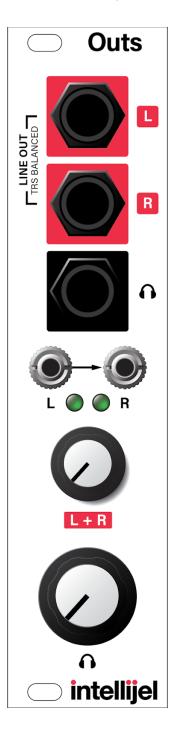# Outs

Balanced Stereo Line & Headphone Output Module

Manual Revision: 2019.07.16

Table of Contents

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.
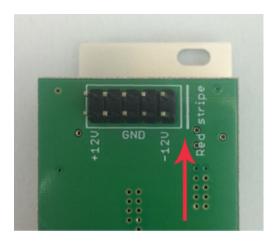
You will also need to ensure your case has enough free space (hp) to fit the new module. To prevent screws or other debris from falling into the case and shorting any electrical contacts, not leave gaps between adjacent modules, and cover all unused areas with blank panels. Similarly, do not use open 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. Different modules use different ways to indicate the -12V pins. Some may be labelled with "-12V;" a white stripe next to the -12V pins; the words "red stripe;" or some combination of these. Additionally, some modules may have shrouded headers, thus preventing backward connections.
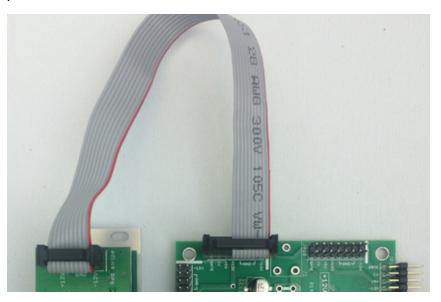
Most modules will come with the cable already connected but it is good to double check the orientation. Be aware that some modules may have headers that serve other purposes so ensure the cable is connected to the right one.

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

Outs enables your modular system to output both professional and prosumer compliant audio, and send it to external amplifiers, mixers, recording devices, or DAW interfaces. Using the L+R Level knob, it scales modular-level voltages down to the level required to drive external gear at either the +4dBu balanced professional line-level standard or the -10 dbV unbalanced standard.

Headphone monitoring is also provided via a low noise built-in headphone amp (with its own independent level control), capable of driving a wide range of impedances — from studio grade headphones to portable style earbuds.

To use Outs, simply connect the final output of your patch to the ⅛" inputs (where the built-in activity LEDs light up to indicate the presence and intensity of the input signal). The left input is normalled to the right, so you can create a stereo signal from a mono source. Or if you have an Intellijel Mixup, you can remove a jumper from its rear panel, and connect it to the Outs module using the 3-pin link cable included with the Mixup.

Features

- Headphone amp capable of driving high impedance headphones via a 1/4″ stereo Neutrik jack.

- Two channel, +4dBu balanced line level outputs on TRS 1/4″ Neutrik jacks (fully compatible with -10 dbV unbalanced audio gear).

- Left input is normalled to the Right input, allowing a mono input signal to drive both stereo output channels.

- LEDs to monitor the modular-level signal sent into the device.

- Attenuator knob for the line out level, plus a separate volume control for headphones.

- 3-pin link connector on the back for connecting the output of a Mixup module directly to the Outs module.

Front Panel

Inputs & Outputs

A. L Input

Eurorack-level audio sent into this jack is scaled to standard audio levels by the **L+R LINE OUT Level Knob [2]** (whose range supports both +4 dBu or -10dbV gear), then sent out the **L Line Out** 1/4″ jack **[C]**. It's also scaled by the **HEADPHONE Level Knob [3]** and sent to the **HEADPHONE Out jack (E)**.

B. R Input

Eurorack-level audio sent into this jack is scaled to standard audio levels by the **L+R LINE OUT Level Knob [2]** (whose range supports both +4 dBu or -10dbV gear), then sent out the **R Line Out** 1/4″ jack **[D]**. It's also scaled by the **HEADPHONE Level Knob [3]** and sent to the **HEADPHONE Out jack (E)**.
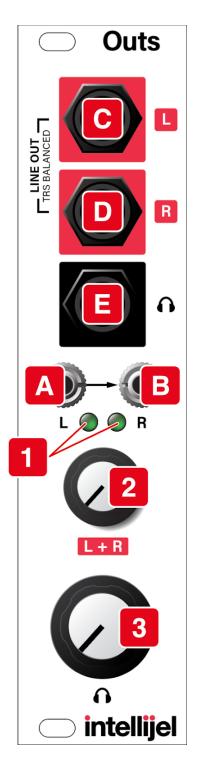
*NOTE: The **L Input** jack is normalled to the **R Input** jack. If nothing is connected to the **R Input** jack, then a mono signal fed into the **L Input** jack will feed both of the 1/4″ output jacks.*

C. L Line Out

This 1/4″ TRS jack carries a balanced, attenuated output of the modular-level signal sent into the 1/8″ **L Input** jack **[A]**, enabling you to interface your modular gear with external mixers, power amps or DAWs. If you're connecting to a -10dBV system, reduce the output level using the **L+R LINE OUT** level knob **[2]**.

D. R Line Out

This 1/4″ TRS jack carries a balanced, attenuated output of the modular-level signal sent into the 1/8″ **R Input** jack **[B]**, enabling you to interface your modular gear with external mixers, power amps or DAWs. If you're connecting to a -10dBV system, reduce the output level using the **L+R LINE OUT** level knob **[2]**.

E. HEADPHONE Output

This is a stereo 1/4″ output intended primarily for headphones. Its volume level is set with the **HEADPHONE** Level knob **[3]**.

Controls

1. LED Level Indicators

These two LEDs indicate the presence of a signal at the **L Input [A]** and **R Input [B]** jacks, respectively. The brighter the LED, the hotter the input level.

Because the **L Input** jack is normalled to the **R Input** jack, both LEDs will light if you send a signal to only the **L Input**.

2. L+R LINE OUT Level Knob

This knob governs the volume sent out ¼" **L Line Out [C]** and **R Line Out [D]** jacks.

When set straight up (12 o'clock position) and fed with a 1kHz, 10 V peak-to-peak sine wave, the module sends approximately +4 dBu to its **L Line Out [C]** and **R Line Out [D]** jacks.
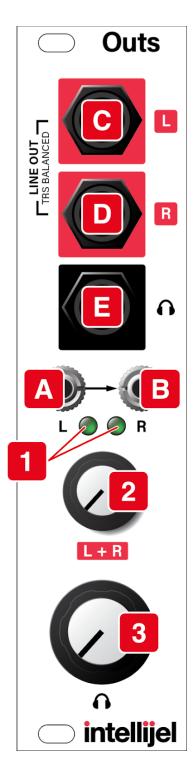
Above 12:00 o'clock, the module outputs voltages in excess of +4 dBu, reaching a top-of-spec limit of +21 dBu at maximum clockwise rotation.

When set to the 10 o'clock position and fed with a 1kHz, 10 V peak-to-peak sine wave, the module sends approximately a -10dbV unbalanced level to its **L Line Out [C]** and **R Line Out [D]** jacks.

3. HEADPHONE Level Knob

Controls the level of the headphone output. Headphone volume is completely independent of the **LINE OUT** level **[2]**.

CAUTION: Always be mindful of volume levels when listening through headphones. Keep this level as low as required. Your future self will thank you.
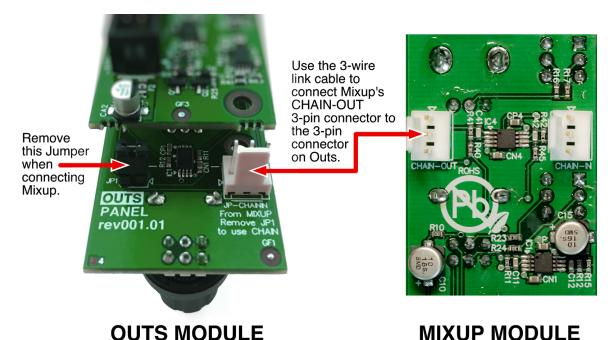
Connecting a Mixup

If you own a Mixup, you can connect it directly to the Outs module, using the link cable provided with your Mixup module. To do so:

1. Using the 3-wire link cable provided with your Mixup module, connect one end of it to the **CHAIN-OUT** 3-pin connector on Mixup, and the other end to the 3-pin connector on the Outs module.

2. **IMPORTANT!** On the back of the Outs module, **remove the JP1 jumper connector and put it in a safe place**.

   This jumper is what normals the Outs module's Left input to its Right input. Since the Mixup module has its own Left-to-Right normalling, optimum sonic fidelity requires that you remove this jumper from the Outs module when connecting a Mixup via its link cable.

Remove this Jumper when connecting Mixup.

Use the 3-wire link cable to connect Mixup's CHAIN-OUT 3-pin connector to the 3-pin connector on Outs.

OUTS MODULE   **MIXUP MODULE**

NOTE: If you connect Mixup to Outs using the rear 3-pin link cable as described, and then connect a signal to either the **L Input** or **R input** jack on Outs' front panel, then Outs will use the front panel signal rather than the signal coming from Mixup. This lets you keep a Mixup permanently connected, but temporarily override Mixup's input by patching directly into the front of Outs. Remember — because you removed the JP1 jumper when you connected Mixup — that the front panel's **L Input** will no longer be normalled to the **R Input**.

Technical Specifications

Width	6 hp
Maximum Depth	34.5 mm
Current Draw	37 mA @ +12V 29 mA @ -12V (with maximum amplification)