

phono preamp RCA.1

User Manual

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1. Introduction

1.1. About RCA.1

RCA.1 is a stereo phono preamplifier designed to integrate a turntable into a Eurorack modular system.

The module amplifies and equalises the low-level signal from a moving-magnet (MM) phono cartridge, converting it to Eurorack-compatible audio level. RCA.1 also provides a selectable stereo line-level input, allowing external audio sources to be processed within the same Eurorack setup.

Dedicated DIP switches allow the cartridge loading to be adjusted to suit the connected turntable cartridge. Refer to Section 5, Cartridge Loading, for details on configuring the available load options.

Designed for music production, performance, sampling, and turntablism, RCA.1 makes it possible to route vinyl records and other stereo audio sources through Eurorack mixers, VCAs, filters, effects, modulation, and recording chains.

1.2. Intended use

RCA.1 is intended for installation in a compatible Eurorack case with a suitable regulated power supply.

Use the phono input only with a turntable fitted with a moving-magnet (MM) cartridge. Use the line input with stereo line-level audio sources. RCA.1 is not intended for direct connection to speaker outputs, amplified loudspeaker outputs, or other high-power audio sources.

The module provides a stereo Eurorack-level audio output for connection to compatible Eurorack modules and audio systems.

1.3. Package Content

The RCA.1 package includes:

- 1 × RCA.1 Eurorack module
- 1 × 10 pin power ribbon cable (approx. 30cm)
- 1 × set of mounting screws

Please inspect all items before installation. If any item is missing or damaged, contact Skratch Logic before connecting or operating the module.

2. Safety Information

Please read this section before installing or operating RCA.1. Keep this manual for future reference.

2.1. General Safety

RCA.1 is intended for use only as a Eurorack module installed in a compatible Eurorack case with a regulated power supply.

Do not use the module outside a Eurorack system. Do not connect it directly to mains power or to an external power supply not designed for Eurorack operation.

Do not expose the module to water, excessive humidity, condensation, dust, or direct heat sources. Do not operate the module if it or its power cable appears damaged.

There are no user-serviceable parts inside the module. Do not disassemble, modify, desolder or attempt to repair the module. Contact Skratch Logic if service is required.

2.2. Power Connection

Always switch off and disconnect your Eurorack case from mains power before installing, removing, or reconnecting RCA.1.

Connect the supplied power ribbon cable with correct polarity. Before powering the system, verify that the **-12 V** marking on the module, **red stripe** on the ribbon cable, and Eurorack bus board are correctly aligned.

An incorrectly connected ribbon cable may damage the module, the power supply, or other modules in the system.

Before installation, ensure that your Eurorack power supply has sufficient available capacity on all required power rails. Refer to Section 7, Technical Specifications, for RCA.1 power requirements.

2.3. Audio Connection

Use the **PHONO** input only with a turntable fitted with a moving-magnet (MM) cartridge.

Use the LINE input only with stereo line-level audio sources. Do not connect speaker outputs, powered amplifier outputs, or other high-power sources to RCA.1. Such connections may damage the module.

Start with the output level set low when connecting RCA.1 to other modules, mixers, audio interfaces, headphones, or monitoring equipment. Increase the level gradually to avoid unexpected high signal levels, distortion, or damage to connected equipment.

2.4. Grounding and Noise

Connect the turntable ground wire to the RCA.1 ground terminal when required by the turntable. Incorrect or missing grounding may result in audible hum or noise.

Keep unbalanced audio cables as short as practical and route them away from mains adapters, transformers, and other potential sources of electromagnetic interference.

2.5. Installation and Handling

Handle the module by its front panel and edges. Avoid touching exposed components, connectors, or circuit-board traces.

When installing the module, use suitable Eurorack mounting screws. Do not overtighten the screws, as this may damage the front panel, rails, or threaded inserts.

Do not install the module in a case with inadequate ventilation or a power supply operating beyond its specified capacity.

3. Installation

3.1. Before You Begin

RCA.1 requires 4 HP of free space in a compatible Eurorack case.

Before installing the module, make sure that your Eurorack case is switched off and disconnected from mains power. Ensure that the power supply provides sufficient available current on the +12 V and –12 V rails.

Refer to Section 7, Technical Specifications, for the module dimensions and power requirements.

RCA.1 does not require +5 V or –5 V power.

3.2. Connecting the Power Ribbon Cable

RCA.1 uses a 10-pin shrouded Eurorack power connector. The supplied power ribbon cable connects separately to the module and to a compatible Eurorack bus board.

1. Ensure that your Eurorack case is switched off and disconnected from mains power.
2. Locate the -12 V marking next to the power connector on the rear of RCA.1.
3. Connect the ribbon cable so that its red stripe is aligned with the -12 V marking on the module.
4. Connect the other end of the ribbon cable to an available bus-board connector, again ensuring that the red stripe is aligned with the bus board's -12 V indication.
5. Check that both connectors are fully seated and correctly aligned before powering the system.

The shrouded connector helps ensure correct plug orientation. RCA.1 also includes Schottky-diode reverse-polarity protection. However, always verify the ribbon cable orientation before applying power. This protection is a safeguard and must not be treated as a substitute for correct installation.

3.3. Mounting the Module

Position RCA.1 in the selected 4 HP space and secure it to the Eurorack rails using the supplied mounting screws.

Tighten the screws only enough to hold the front panel securely in place. Do not overtighten them, as excessive force may damage the panel, rail hardware, or mounting threads.

After mounting the module, check that:

- The front panel is seated evenly against the rails.
- The power ribbon cable is not pinched, sharply bent, or trapped behind another module.
- The cable and rear PCB do not interfere with adjacent modules or the case enclosure.

3.4. Connecting an Audio Source

RCA.1 provides two gold-plated RCA input connectors:

- L IN — left channel input
- R IN — right channel input

Connect the left and right outputs of your turntable or stereo line-level source to the corresponding RCA inputs.

Set the front-panel input selector to match the connected source:

Connected source	Required selector position
Turntable with a MM cartridge	PHONO (right position)
Stereo line-level source	LINE (left position)

IMPORTANT

Do not use the **PHONO** setting with a line-level source. **PHONO** mode applies high gain and **RIAA** equalisation intended for the low-level output of an MM cartridge.

The **LINE / PHONO** selector may be switched during operation. To avoid abrupt level changes, distortion, or excessive signal levels in the rest of your system, reduce the downstream mixer or monitoring level before changing modes.

3.5. Connecting the Turntable Ground

When using a turntable, connect its ground wire to the RCA.1 grounding screw. Phono signals require high gain, so unwanted interference and noise can also be amplified by the audio path. Proper grounding can reduce audible hum and other noise.

For a turntable ground wire with a bare conductor:

1. Loosen the grounding screw gently until the small opening in the metal post becomes visible.
2. Insert the bare end of the ground wire into the opening.
3. Tighten the screw gently to clamp the wire securely in place.

For a ground wire fitted with a spade connector:

1. Loosen the grounding screw slightly.
2. Place the spade connector between the screw head and the nut.
3. Tighten the screw gently until the connector is held securely.

Do not overtighten the grounding screw. Confirm that the wire or spade connector is secure before operating the turntable.

3.6. Connecting the Eurorack outputs

RCA.1 provides two separate 3.5 mm mono Eurorack outputs.

Connect **L OUT** and **R OUT** to suitable Eurorack-level audio inputs, such as a stereo mixer, dual VCA, crossfader, filter, or effect processor

IMPORTANT

RCA.1 outputs operate at Eurorack audio level (10Vpp). Do not connect **L OUT** or **R OUT** directly to a line-level input, powered speaker, amplifier input, or headphone output. Use an appropriate Eurorack output module or attenuator when sending the signal outside the modular system.

3.7. First Power-Up

Before switching on your Eurorack case:

- Verify the ribbon cable orientation at both ends.
- Confirm that the **LINE / PHONO** selector matches the connected source.
- Ensure that the **RCA** connectors are fully inserted.
- Connect the turntable ground wire when required.
- Set any downstream mixer, VCA, audio interface, headphone amplifier, or monitoring level to a low setting.

Switch on the Eurorack case. Then gradually raise the level of the connected downstream equipment and confirm that the expected stereo signal is present.

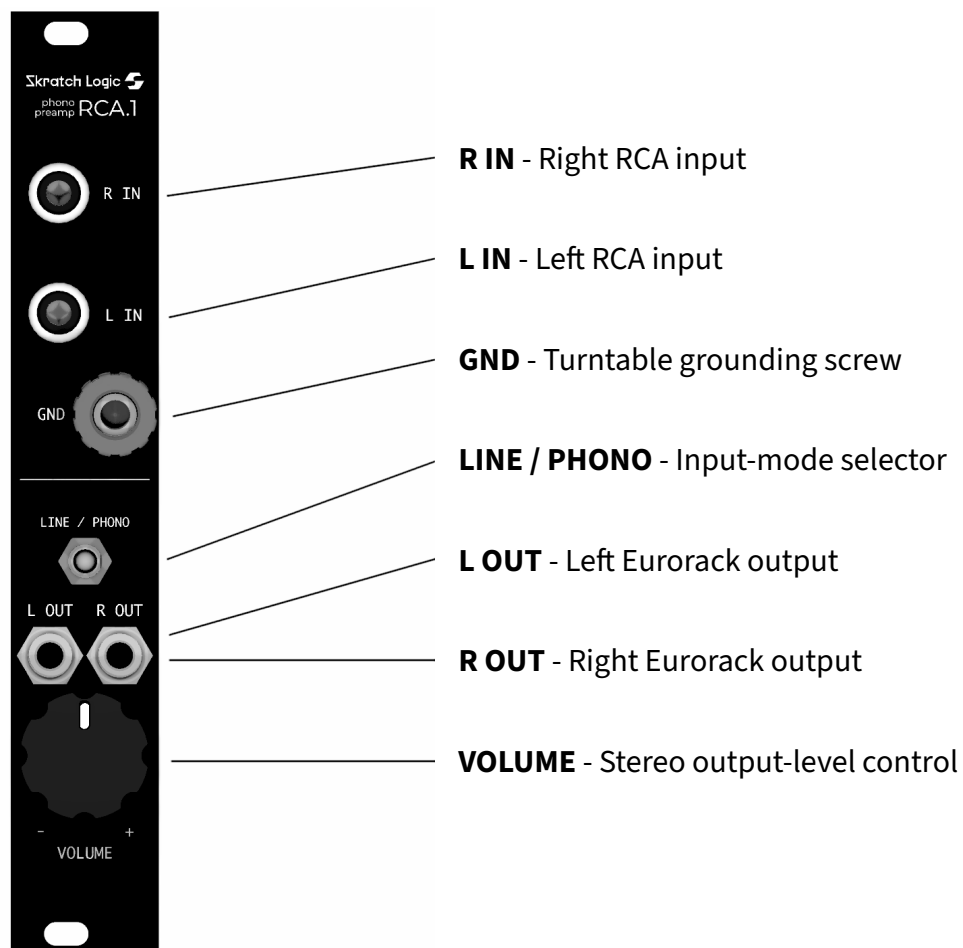
3.8. Set the Level

Start playback on the turntable or the line source.

Slowly turn the **VOLUME** control clockwise while monitoring the signal in your Eurorack system. **VOLUME** controls the final output level of both left and right channels simultaneously.

Set the level so that the following module or mixer receives a strong signal without clipping. If distortion occurs, reduce the RCA.1 **VOLUME** setting or lower the input level in the downstream Eurorack module.

4. Front panel overview



5. Cartridge Loading

Cartridge loading affects the electrical interaction between the moving magnet cartridge, RCA cable, and RCA.1 input stage. It can influence the upper-frequency response of the connected cartridge.

Two independent 4-position DIP switches are located on the rear PCB, between the two circuit boards of the module. One switch configures the left channel and the other configures the right channel.

The switches can be accessed with a small screwdriver after removing the module from the Eurorack case. It is not necessary to separate the PCBs or disconnect the power ribbon cable. The ON direction is marked on each DIP switch.

When multiple switches are set to ON, their resistors are connected in parallel. This results in a lower total load resistance.

For normal stereo operation, always use the same DIP-switch configuration for the left and right channels.

If the upper frequency range sounds excessively bright, harsh, or resonant, try a lower load resistance by enabling an additional switch. If the sound appears too dark or overly damped, return to the 47 k Ω default setting or try a higher load resistance.

6. Troubleshooting

symptom	possible cause	recommended action
No audio output	VOLUME is set to minimum; incorrect input-mode selection; incomplete RCA or Eurorack patch connection	Confirm that VOLUME is raised gradually. Select PHONO for an MM turntable or LINE for a line-level source. Check the RCA inputs and both L OUT / R OUT patch cables.
No output after installation	Incorrect ribbon-cable connection; insufficient Eurorack power capacity; incomplete connection to downstream modules	Switch off and disconnect the case from mains power. Check the ribbon cable orientation at both ends, ensuring that the red stripe is aligned with -12 V . Confirm that the case power supply has sufficient available current. Check the output patch cables and downstream signal path.
Signal is present in one channel only	One RCA cable, output patch cable, or downstream connection is disconnected or faulty	Check both RCA input connections and both L OUT / R OUT patch cables. Test each channel separately in the downstream mixer or output chain.
Left and right channels have unequal level	Cartridge not seated correctly; poor tonearm contacts; faulty turntable cable; issue in RCA.1 or downstream signal path	Check that the cartridge is fully seated in the headshell or tonearm. Inspect and clean the cartridge/tonearm contacts if necessary. Check the turntable RCA cables. Swap the turntable's left and right RCA plugs at the RCA.1 inputs. If the imbalance follows the swapped cable, the issue is upstream of RCA.1. If the same RCA.1 output channel remains quieter after checking the turntable, cables, output patch cables, and downstream mixer input, contact Skratch Logic support.

Loud hum or noise in PHONO mode	Turntable ground wire is disconnected; RCA cables are close to a power supply, transformer, or mains cable	Connect the turntable ground wire to the GND terminal. Keep RCA cables as short as practical and route them away from power supplies, transformers, mains adapters, and mains cables.
Severe distortion or unexpectedly high level	A line-level source is selected in PHONO mode; VOLUME is too high; downstream Eurorack input is clipping	Select LINE for a line-level source. Reduce the RCA.1 VOLUME control, then increase it gradually. Reduce the level or attenuate the signal before the next module if required.
Signal level is too low	VOLUME is too low; incorrect input mode; low-output source	Increase VOLUME gradually. Confirm that an MM turntable uses PHONO mode and a line-level source uses LINE mode. Check the turntable cartridge and source connections.
High frequencies sound too bright, harsh, or resonant	Cartridge loading is not optimal for the connected cartridge and cable combination	Review the <i>Cartridge Loading</i> section. Begin with the factory 47 kΩ setting. Try a lower total load resistance by enabling an additional loading resistor. Always match the DIP-switch configuration for left and right channels.
High frequencies sound too dark or overly damped	Cartridge loading is too low	Return to the factory 47 kΩ setting or try a higher loading resistance. Always use the same loading configuration for both channels during normal stereo playback.
Click or abrupt level change when switching input mode	LINE / PHONO selector was changed while audio was present	Reduce VOLUME and lower the downstream monitoring level before changing the input mode. This is normal behaviour for a mechanical input selector.

7. Technical Specifications

Specification	Value
Product	RCA.1 stereo phono preamplifier Eurorack module
Module width	4 HP
Module depth	45mm (including connected power cable)
Power connector	10-pin shrouded Eurorack power connector
Power consumption, +12 V rail	12 mA
Power consumption, -12 V rail	12 mA
+5 V rail	Not required
-5 V rail	Not required
Audio inputs	2 × RCA connectors, stereo left and right
Input modes	PHONO for moving-magnet (MM) cartridges; LINE for stereo line-level sources
Audio outputs	2 × 3.5 mm mono Eurorack outputs: L OUT and R OUT
Output level control	Shared stereo VOLUME control
Cartridge loading	47 kΩ default load with selectable additional parallel loading resistors via independent left and right 4-position DIP switches
Ground connection	Front-panel turntable grounding screw
Reverse-polarity protection	Schottky-diode protection on the Eurorack power input

8. Compliance and Disposal

RCA.1 is designed and manufactured by Skratch Logic for use as a Eurorack modular synthesizer module.

The manufacturer declares, under its sole responsibility, that RCA.1 complies with the applicable requirements of:

- Directive 2014/30/EU - Electromagnetic Compatibility (EMC)
- Directive 2011/65/EU and Commission Delegated Directive (EU) 2015/863 - Restriction of Hazardous Substances (RoHS)

Conformity has been assessed using the applicable internal production control procedure. The EU Declaration of Conformity is issued under the sole responsibility of Skratch Logic.

The CE marking indicates conformity with applicable European Union harmonisation legislation.

RCA.1 is subject to the requirements of Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). The crossed-out wheeled-bin symbol means that the product must not be disposed of with unsorted municipal waste. At the end of its service life, take it to an appropriate collection point for electrical and electronic equipment.

Poland - BDO registration number: 000743925.