QUART

Quick guide

NANO

Thank you for choosing QUART for your Eurorack System.

Powering up

1. Turn off the power of your modular synthesizer.

2. Double check the power cord polarity. If you plug the module backwards you might damage its electronic circuits.

If you flip over your QUART, you will find the "RED" mark at the PCB power connector, which must match the colored line on the ribbon cable.

3. Once you have checked all the connections, you can turn on your modular system.

4. If you notice any anomalies, turn your system off right away and check again your connections.

Description

QUART is a **Quadruple Attack-Decay Envelope & Low Frequency Oscillator,** which means it has 4 independent functions that can work as Low Frequency Oscillators or Attack-Decay Envelopes depending on whether the Trigger Inputs are connected or not.

An **Envelope** describes how a sound changes over time. Synthesizers use envelopes to create shapes designed for making musical sounds. You can adjust the envelope's controls to tell it what kind of shape to make. It normally relates to the amplitude (volume), but it may also involve elements such as filters (frequencies) or pitch.

QUART is an **AD Envelope** (Attack & Decay), meaning that it consists of two phases, Attack & Decay (also called Rise and Fall). When the AD is triggered it starts a rising phase until it reaches its maximum level (Rise) and then it decreases to its minimum level (Fall), but unlike an AR it has no sustain segment.

The output of an AD generator lasts for a **fixed amount of time,** regardless of wether or not the key that triggered it is still being held down.

QUART uses an **Exponential Shape** for the envelope signal, found on many classic envelope generators, which tend to have a more **plucked character.** This is best used with linear VCAs (such as our ALT Quad VCA).

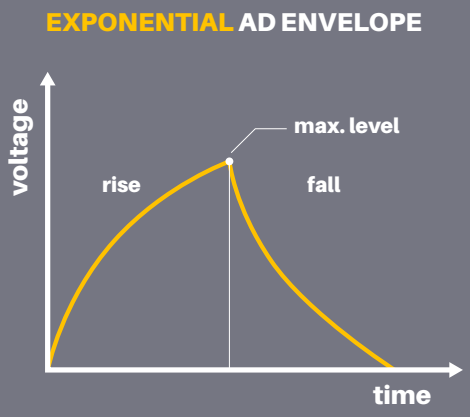
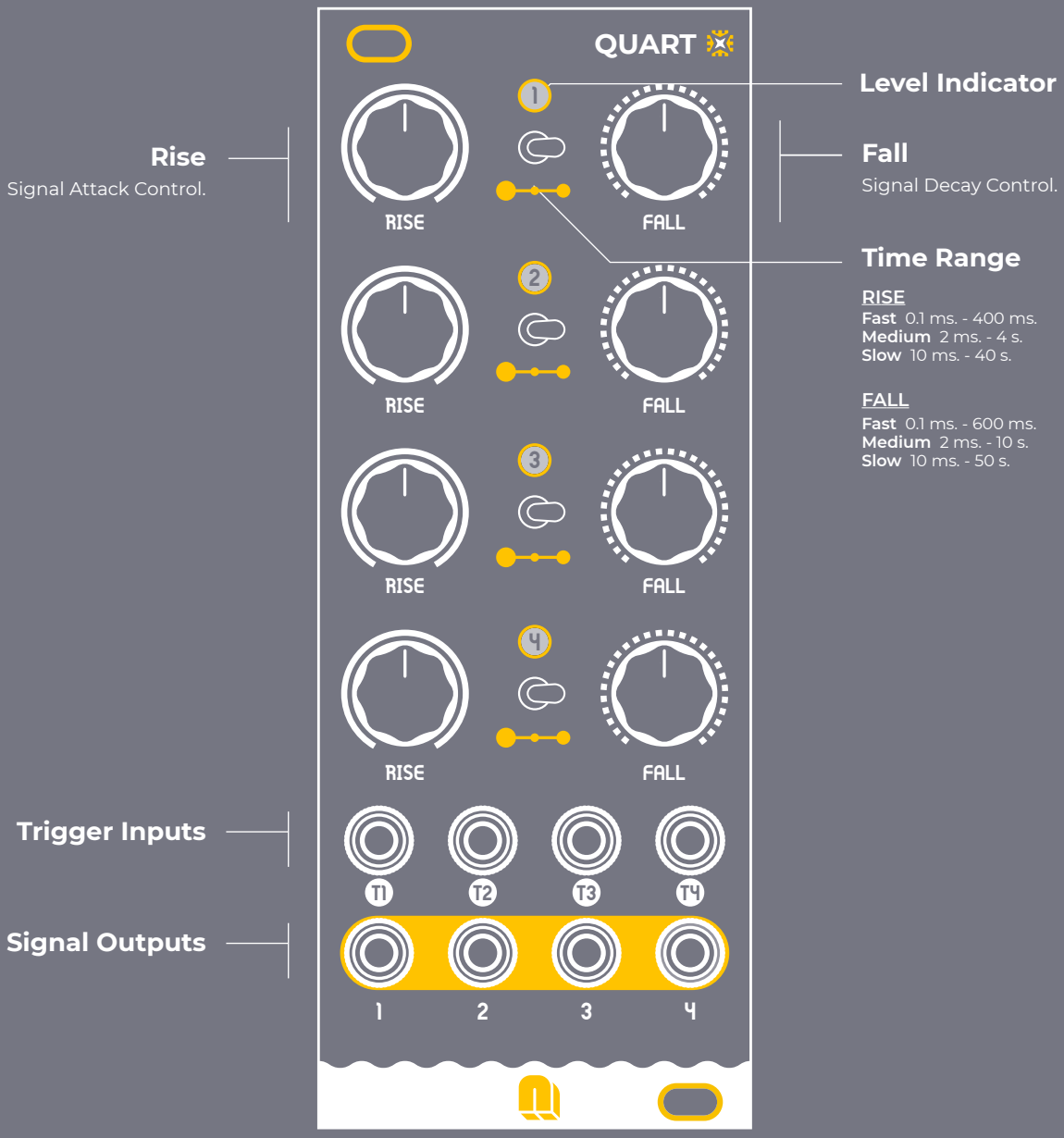


Fig.1 Exponential AD Envelope Signal Shape

LFOs make a repeating change to some aspect of the sound. Although the LFO is a type of oscillator, we can't hear its output. Instead, the output is used as a control signal for changing some parameter of a synth or an effect.

Layout

This image will clarify the function of each of the elements of the module.



Controls

- **RISE**

  This knob controls the rising time of the function, starting from zero to the maximum level. Slower times will create a fade-in effect while faster times are used for snappy percussive sounds.

- **FALL**

  This knob controls the fall-to-zero time from the maximum level.

- **TIME RANGE**

  This switch allows you to select between **3 speed ranges** for each function:

  /Fast. Designed to perform audio range LFO, and very snappy envelopes. (Fig. 1)

  Rise: 0.1 ms. — 400 ms.
  Fall: 0.1 ms. — 600 ms.

  /Medium. Classic envelope Rise & Fall and normal LFO rates. (Fig. 1)

  Rise: 2 ms. — 4 ms.
  Fall: 2 ms. — 10 ms.

  /Slow. Convenient for long evolving patches and pads. (Fig. 1)

  Rise: 10 ms. — 40 s.
  Fall: 10 ms. — 50 s.

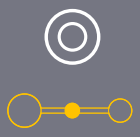


Fig.2 FAST Time Range selected

Fig.3 MEDIUM Time Range selected

Fig.4 SLOW Time Range selected

Inputs & Outputs

• Trigger Inputs

/1 - 4
Patch a trigger or gate signal here to launch the function generator. There are four TRIG inputs — one for each of the four function generators.

If no patch cable is connected to a Trigger Input, the signal will oscillate freely (LFO) but if a patch cable is connected, it will work as an Envelope (AD).

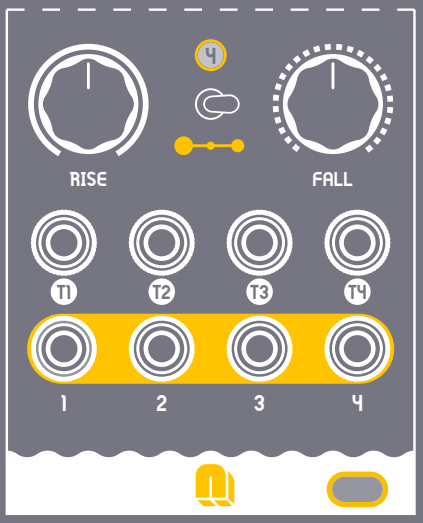


Fig.5 Inputs & Outputs Close-up View

QUART as an LFO
When no patch cable is plugged into an trigger input, the signal from this channel will work as an LFO.

This LFO works as a looping envelope, which means that when the fall phase has ended, automatically triggers the start of the rising phase.

RISE and FALL control the rising and falling time of the signal respectively.

• Outputs

/1 - 4
There are four QUART outputs — one for each of the four function generators.

In Envelope Mode the function generator outputs a unipolar 0-9V control signal.

In LFO Mode the function generator outputs a unipolar 1-9V control signal.

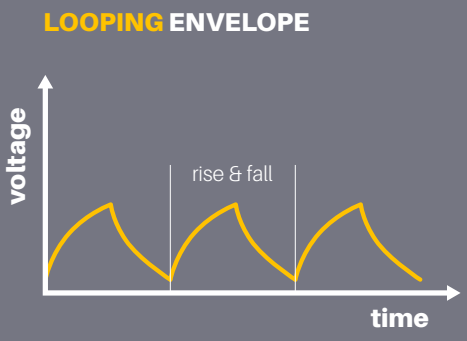


Fig.6 Looping Envelope Signal over time

Compliance

This device complies to the **EU guidelines** and is manufactured **RoHS** conforming without use of led, mercury, cadmium and chrome. Nevertheless, this device is special waste and disposal in household waste is not recommended.

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

- **EMC: 2014/30/EU**
- **EN 55032.** Electromagnetic compatibility of multimedia equipment.
- **EN 55103-2.** Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use.
- **EN 61000-3-2.** Limits for harmonic current emissions.
- **EN 61000-3-3.** Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.
- **EN 62311.** Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields.
- **RoHS2: 2011/65/EU**
- **WEEE: 2012/19/EU**

Guarantee

This product is covered by **2 years of guarantee** on purchased goods, which begins when you receive your package.

- **This guarantee covers**

  Any defect in the manufacturing of this product.
  Replacement or repair, as decided by NANO Modules.

- **This guarantee does not cover**

  Any damage or malfunction caused by incorrect use , such as, but not limited to:
  - Power cables connected backwards.
  - Excessive voltage levels.
  - Unauthorized mods.
  - Exposure to extreme temperature or moisture levels.

Please contact our customer service - jorge@nanomodul.es - for a return authorization before sending the module. The cost of sending a module back for servicing is paid for by the customer.

Technical Specifications

Dimensions 10HP 50x128,5mm
Current 25 mA +12V / 6 mA -12V / 0 mA +5V
Input Signals >2V
Output Signals 0 - 9V
Impedance Input 10k - Output 10k
Materials PCB and Panel - FR4 1,6mm
Depth 20mm - Skiff friendly

Modules are designed and assembled in València.

Contact

Bravo!
You have learned the basic fundamentals of your QUART Module.

If you have any doubts, please feel free to contact us.
nanomodul.es/contact