2-pole
ANALOG FILTER
User Manual

English

waldorf

Content

Foreword

Thank you for purchasing the Waldorf 2-pole analog filter.

By choosing a Waldorf product, you know this device has been crafted and produced carefully, in Germany, for the most exigeant musicians. We hope you will have great fun and many creative / innovative ideas using it.

Reading this user manual, you will discover all the device features, learn its basic use in real situations, and benefits of tips & tricks we gathered during product development / quality checks.

Your Waldorf-team

Hint

Waldorf Music is not liable for any erroneous information contained in this manual. The contents of this manual may be updated at any time without prior notice. We made every effort to ensure the information herein is accurate and that the manual contains no contradictory information. Waldorf Music extends no liabilities in regard to this manual other than those required by local law.

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Revision:	1.0, May 2014

Please visit our website **www.waldorfmusic.com** for more information about the 2-pole Analog Filter!

We would like to thank

Christian Bacaj, Karsten Dubsch, Willie Eckl, Joachim Flor, Michael von Garnier, Daniel Krawietz, Kurt "Lu" Wangard, 吴海彬, and anyone we have forgotten.

Control Features and Connections

Front Panel

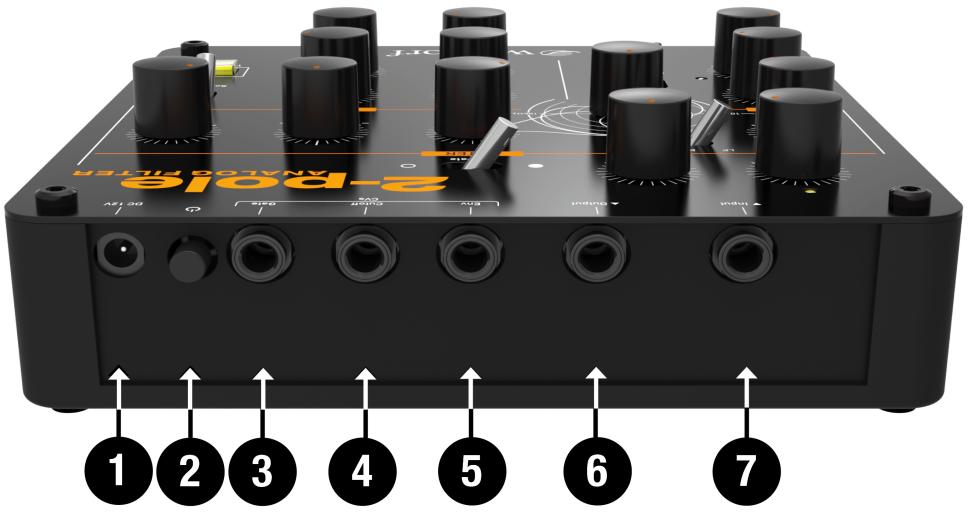
① Amplifier Section

② Filter Section

③ LFO Section

④ Envelope Section

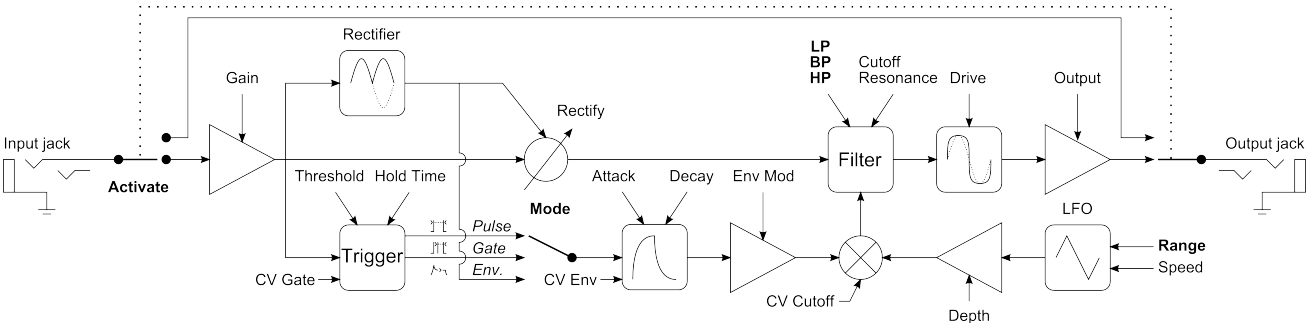
Connections



1. Power Input 12V DC
2. Power Switch
3. Gate Input
4. Cutoff CV Input
5. Envelope Follower CV Input
6. Audio Output Jack (mono)
7. Audio Input Jack (mono)

Audio Signal Path Diagram

The 2-pole Filter is a full analog signal processor with the following signal path:



The input signal is first pre-amplified and then sent to the processing circuitry. This processing consists in a chain of three elements: Rectifier module - Multimode filter - Overdrive module.

Finally, the signal is attenuated and buffered to provide the output.

> The **Activate** switch provides a true bypass functionality on the signal path. When deactivated, the input jack is physically connected to the output jack and the 2-pole has no influence on the audio signal.

Introduction

About this Manual

This manual was written to help you getting familiar with the 2-pole Filter. It will also aid experienced users with routine tasks.

To avoid confusion, the terminology in this manual is based on the 2-pole Filter parameter names. You will find a glossary at the end of this manual; it explains the various terms used.

Important terms are highlighted in bold letters.

Symbols

⚠ **Caution – The comments that follow this symbol will help you avoid errors and malfunctions.**

Info – Additional information on a given topic.

☞ **Instruction – Follow these guidelines to execute a desired function.**

✻ **Example –** Real-world examples to try out.

Highlighted Control Features and Parameters

All of the 2-pole Filter´s buttons, controls and parameters are highlighted in **bold** letters throughout the manual.

Example:

- Press the **Trigger** button.
- Move the **Cutoff** knob.

General Safety Guidelines

⚠ **Please read the following safety tips carefully! They include several precautions you should always observe when dealing with electronic equipment. Read all of the instructions before operating your device**

Suitable Operating Conditions

- Use the device indoors only. Outside it could be rainy or humid as well as too hot or too cold.
- Never use the device under damp conditions such as in bathrooms, washrooms or around indoor swimming pools.
- Do not use the device in extremely dusty or dirty environments in order maintain the surface finishing of the 2-pole Filter.
- Make sure that adequate ventilation is available on all sides of the device. Do not place the device near heat sources such as radiators.
- Do not expose the device to direct sunlight, even if you have a suitable sunscreen.
- Do not expose the device to extreme vibrations.

Power Supply

- Unplug the device when you are not using it for longer periods.
- Always pull the plug when unplugging the device, never the cable.

Operation

- Never place objects containing liquids on or near the device.
- Always place the device on a stable base only.
- Make sure no foreign objects find their way into the chassis. If for some reason this should occur, switch the power off, unplug the device and consult a qualified repair center.
- This device, used on its own or with amplifiers, speakers or headphones, can generate volume levels that may result in irreparable damage to your hearing and/or speakers and amplifiers. For this reason you should keep the volume at appropriate levels at all times.

Maintenance

- Do not open the device or remove the cover. Refer all service and repair tasks to qualified personnel. There are no user serviceable parts inside the chassis.
- Use only a dry, soft cloth or brush to clean the device. Never use alcohol, cleaning solutions or similar chemicals. They will damage the surface of the chassis.

Proper Use

This device is designed exclusively to process low-frequency audio signals for the purpose of generating sound. Any other use is prohibited and voids the warranty extended by Waldorf Music. Waldorf Music is not liable for damages due to incorrect use.

⚠ **Do not leave your 2-pole Analog Filter near children, mothers-in-law or pets. This could lead to critical interactions.**

Setup and Connection

Package Contents

The Waldorf 2-pole Filter package comes complete with:

- the Waldorf 2-pole Filter module
- an external power supply (DC 12V / 500mA)
- a printed quick start guide with use cases

You can also download additional material and software here: **www.waldorfmusic.com**

Please ensure all the items above are included. If something is missing, contact your local dealer.

We recommend that you keep the original packing material for future transport.

Connections

In order to get started with your 2-pole Analog Filter, you will need an AC power outlet. For the connection of the audio output, you will need either a mixing console or an audio interface.

☞ **To connect the devices:**

1. Turn all units off.
2. Connect the 2-pole Filter´s audio output ❻ to your mixing console or your computer audio interface. The output provides a line level signal.
3. Connect the audio input ❼ to an output of your signal source. The audio input is suitable for line level equipment (audio interface, CD player, synthesizer, drum computer etc.) and high impedance instruments (e.g. electric bass, electro acoustic guitar).
4. If you want to control the 2-pole Filter via CV / Gate signals (❸, ❹, ❺), please connect them to the CV / Gate outputs of your gear.
5. Switch on your setup and the 2-pole Analog Filter ❶. Finally, switch on your amplifier or active monitor speakers.

If you do not choose to connect a mixing console, you can patch the 2-pole Filter's output signals directly to an amp or an audio interface. Use an input usually called Line, Aux or Tape input.

Before connecting and disconnecting the 2-pole Filter from a power supply source, turn your amp's volume control all the way down to avoid damage due to on / off switching noise. The 2-pole Analog Filter produces a high level output signal. Please take care that the connected playback device is suitable for the high level of an electronic instrument. Never use the mic or phono input of the connected amp!

2-pole Use Cases

On the following pages you will find useful tutorials to become familiar with the 2-pole. For more information about the dedicated parameters please refer to the chapter "2-pole Parameters".

Overdrive

Settings

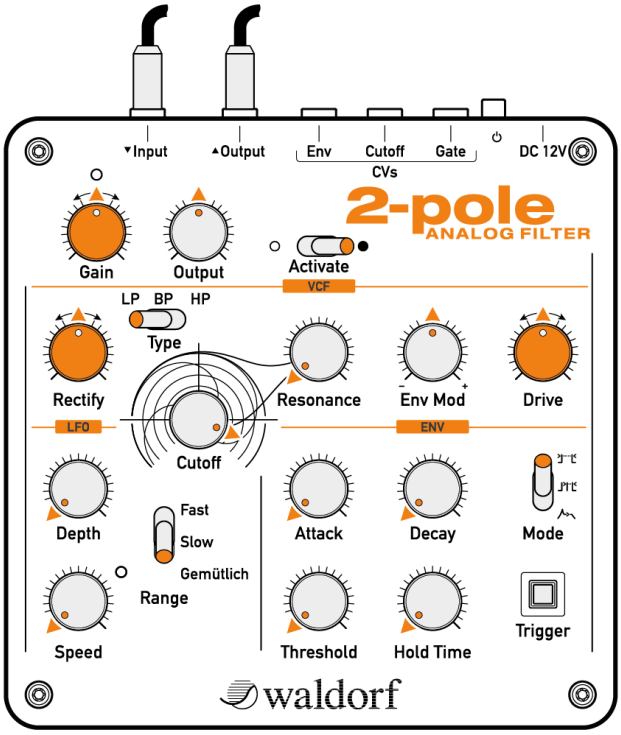
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface

Usage (3 distortion / overdrive types)

- Adjust **Gain** for pre-filter saturated / distorted sound
- Adjust **Rectify** for pre-filter fuzzed / pitch-shifted sound
- Adjust **Drive** for obtaining warm distortion

Tips & tricks

- Lowpass (**LP**) filter the sound before overdriving it heavily
- Make overdrive scream with a bandpass (**BP**) filter and good amount of **Resonance**



Noise / Reverb Gate

Settings

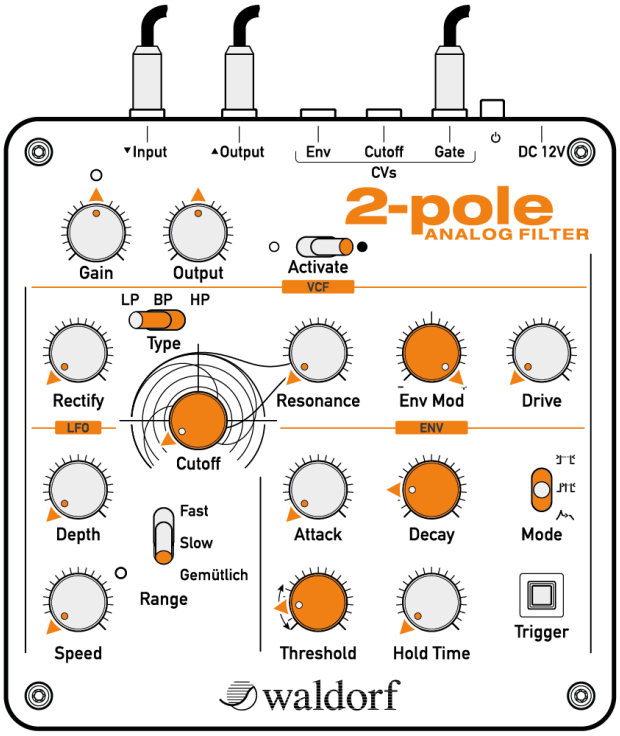
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface
- Optional trigger signal to **Gate**

Usage

- Choose **LP** (low pass) filter with **Cutoff** to minimum
- Set **Env Mod** to maximum
- Set **Trigger Mode** to **Gate Trigger**
- Add a bit of **Decay** (smoothing the gate)
- Adjust **Threshold** to set the floor level

Tips & tricks

- Adding **Hold Time** can prevent unwanted open / close on transients



Multimode Filter

Settings

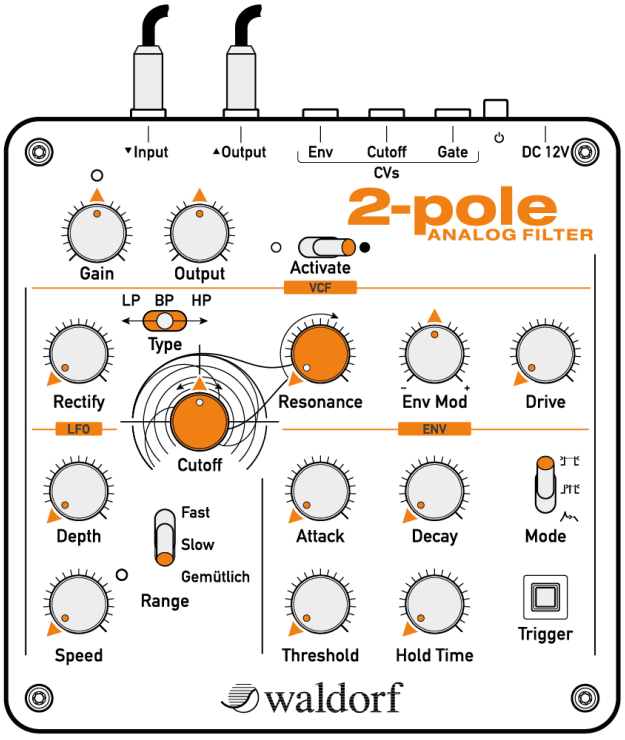
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface

Usage

- Choose **Filter Type (LP / BP / HP)**
- Adjust harmonic content with **Cutoff**
- Put emphasis on cutoff frequency with **Resonance**

Tips & tricks

- Full **Resonance** brings self oscillation
- Adding **Rectify** colors the filter sound



Sidechain Dynamic Processor

Settings

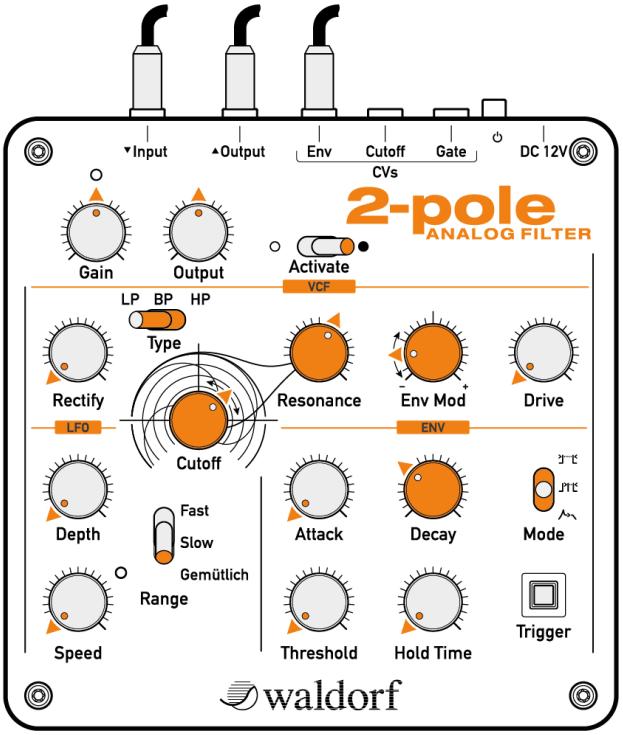
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface
- Sidechain source (e.g. kick drum, click track) to **Env**

Usage (for “compression“ like)

- Choose **LP** filter with **Cutoff** set to 3.5 kHz (nearly 1 o´clock position)
- Set a lot of **Resonance**
- Disable Trigger system
- Set **Env Mod** to minimum
- Set a bit of **Decay** but no **Attack** time

Tips & tricks

- Sidechaining can also be used with **HP** (high pass)



Beat Slicer

Settings

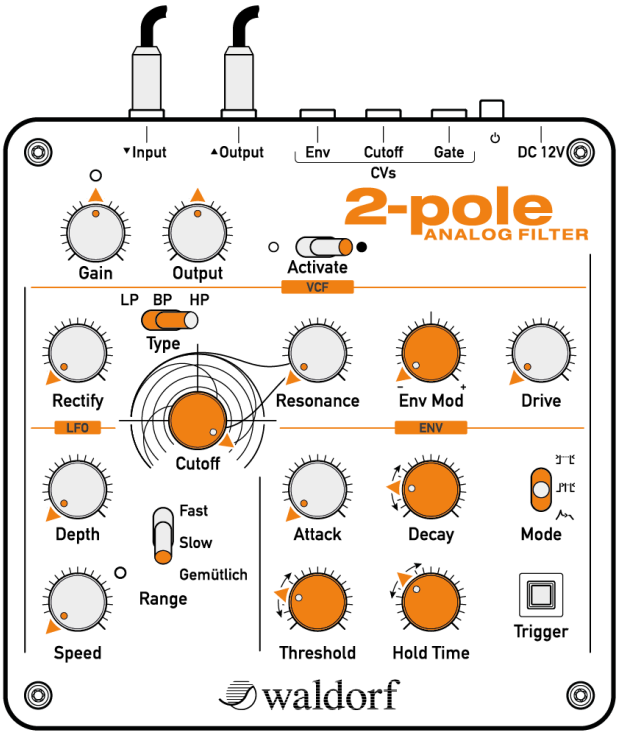
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface

Usage

- Choose **HP** (high pass) filter with **Cutoff** to maximum
- Set **Env Mod** to minimum
- Set **Trigger Source** to **Gate Trigger**
- Adjust **Threshold** to pick up one beat element
- Adjust **Hold Time** / **Decay** to set the slice lenght

Tips & tricks

- Bringing **Decay** and **Resonance** together creates juicy sweeps
- Slicing can also be done with **LP** (low pass) filtering



Wave Crusher

Settings

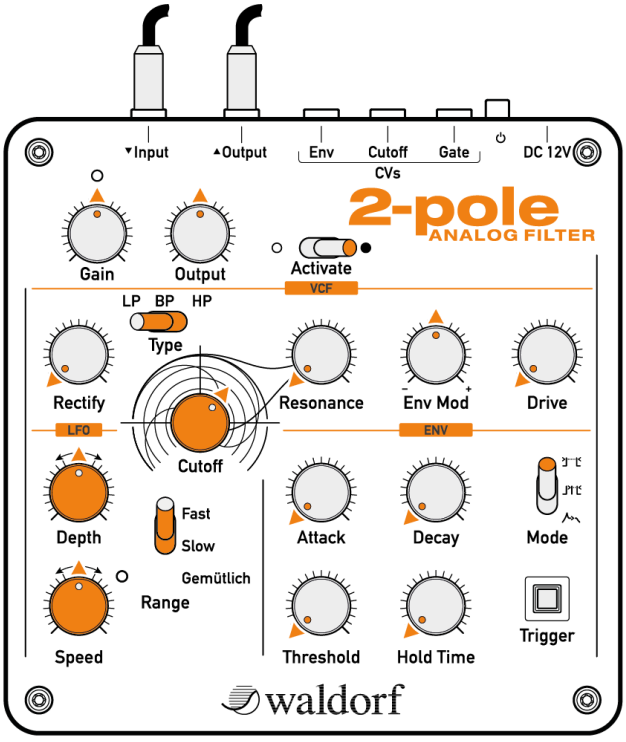
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface

Usage

- Choose **LP** (low pass) filter with **Cutoff** set to 3.5 kHz (nearly 1 o´clock setting)
- Set **LFO Range** to **Fast**
- Adjust **Speed** and **Depth** to crush the sound

Tips & tricks

- Switch from **Slow** to **Fast LFO** to swap from wave crushing to "tremolo" like effect
- Adding **Rectify** makes sound even dirtier



Auto-Filter

Settings

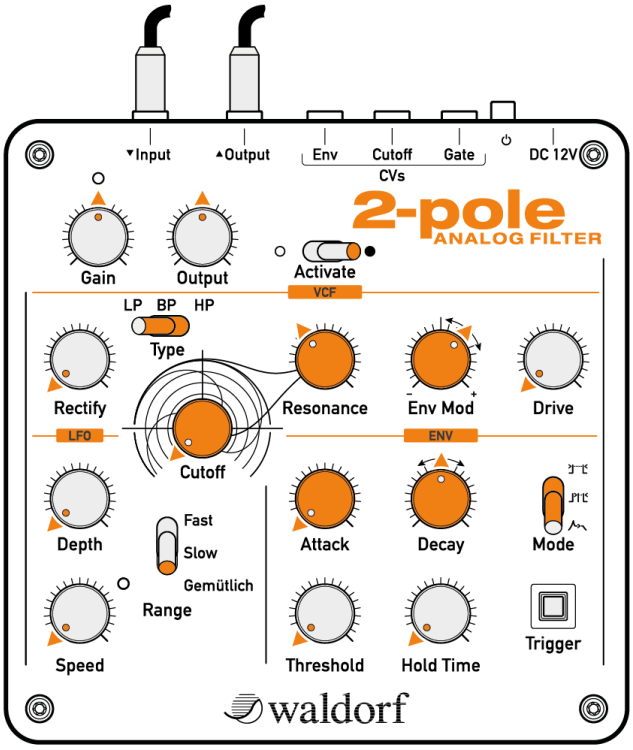
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface

Usage

- Choose **LP** (low pass) filter with **Cutoff** to minimum
- Set a bit of **Resonance**
- Set **Trigger Mode** to Envelope follower
- Set **Attack** to minimum
- Adjust **Env Mod** and **Decay** to get the right sound

Tips & tricks

- Increasing **Resonance** intensifies the sweeping
- Lengthening **Attack** reduces the effect



Analog Kick

Settings

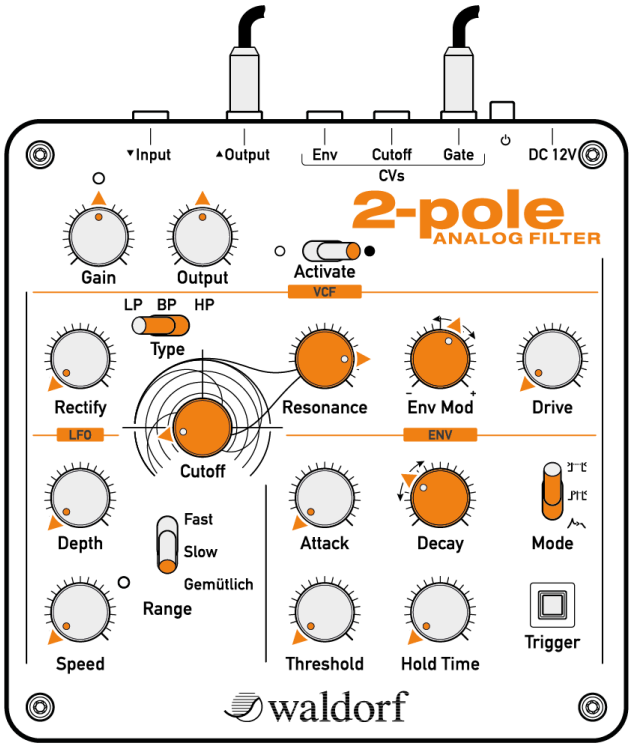
- **Output** to amplifier / mixing desk / audio interface
- Optional trigger signal to **Gate**

Usage

- Choose **LP** (low pass) filter with **Cutoff** to 60 Hz (nearly 9 o´clock setting)
- Set **Resonance** to self oscillation
- Set **Trigger Mode** to Pulse trigger
- Adjust **Decay** and **Env Mod** to get the right sound

Tips & tricks

- Adding some **Drive** gives more punch to the kick
- **Cutoff** sets the base tone of the kick



Auto Wah-Wah

Settings

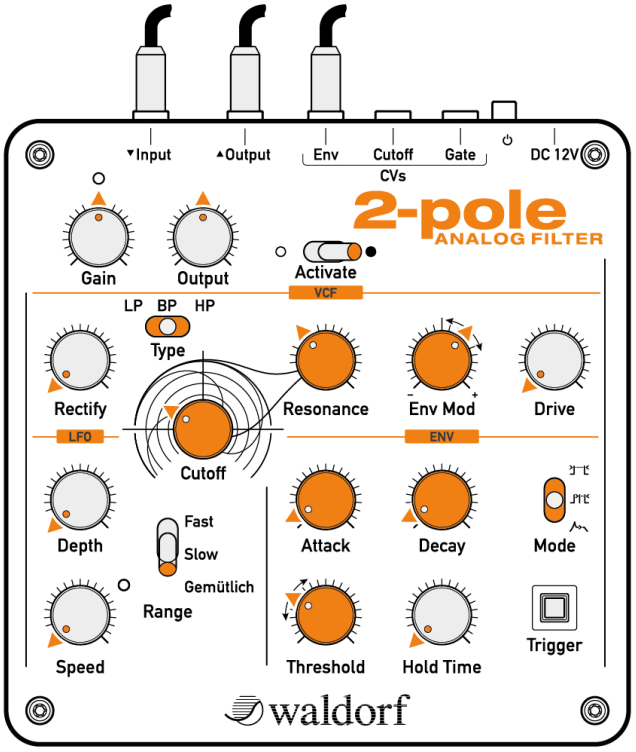
- Instrument / Sound source to **Input**
- **Output** to amplifier / mixing desk / audio interface
- Optional foot pedal to **Env**

Usage

- Choose **BP** (band pass) filter with **Cutoff** to 160 Hz (nearly 10 o´clock setting)
- Set a bit of **Resonance**
- Set **Trigger Mode** to Gate trigger
- Adjust **Attack** and **Decay** to obtain proper wah sound
- Adjust **Threshold** to react on peaks only

Tips & tricks

- **Env Mod** defines the range of auto-wah and pedal



Basic Operation

Powering On / Off

The 2-pole Filter is equipped with a **Power** switch ❷. Push it to switch on the unit. After that, the 2-pole Filter is ready for some action. Push the **Power** switch again to switch off the 2-pole Filter.

Where are the Presets?

The 2-pole Filter is a pure analog device. Because of the very clear controls, we can assure you that you will be able to set an universe of settings within a short time.

Editing

In spite of the 2-pole Filter's compactness, it uses a sophisticated user interface allowing fast editing of any parameter.

Turning a dial clockwise increases the corresponding value; turning it counterclockwise decreases it. Unbelievable! Keep in mind that some switches offers more than two states.

Envelope Input

This input drive the envelope follower unit. It is suitable for a regular synthesizer control voltage (supported voltage range: 0 V – 5 V), a foot-pedal (best impedance range: 10 k – 47 k) or a line level audio signal (audio interface, drum computer output etc.). The incoming signal is added to the envelope follower input. If you want the envelope following the input signal only, the trigger unit has to be disabled. Read more about triggering in the chapter "Envelope Section".

Cutoff CV Input

The Cutoff frequency can be modulated by an external control voltage, e.g. from a Waldorf Pulse 2 or a modular synthesizer. You can also use an expression pedal or an audio signal (e.g. a rhythmic signal).

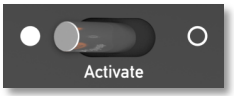
Gate Input

The Gate input can be used to trigger the envelope by an external signal, e.g. from a modular synthesizer.

2-pole Parameters

The Waldorf 2-pole Filter consists of numerous sound-shaping components.

Activate Switch



When activated, the signal is routed through the filter and the filter drive. When deactivated, the complete signal path is truly bypassed and you will get a clean and unprocessed signal.

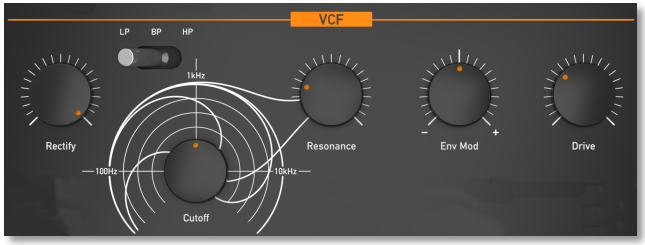
Amplifier Section

To get a clean, not distorted signal, **Gain** should be adjusted to a suitable level. The input gain range from 0 dB to 30 dB, therefore it can handle various input levels. The LED indicator above **Gain** shows whenever an audio signal is present.

Of course, the pre-amplifier can be overloaded to get a saturated input sound. It is up to you to rise the gain, to obtain sounds ranging from smoothly saturated to real dirty / hard clipped.

The **Output** knob controls the volume of the 2-pole Filter's audio output and delivers a line level signal.

Filter Section



The 2-pole offers a multimode filter with rectifier and saturation. The signal path is: Rectifier -> Filter -> Saturation

Rectify

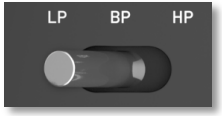
Full-wave rectification is a type of audio signal processing where one half of the signal is inverted. **Rectify** is the dry / wet control for blending the incoming signal with the rectified signal. For your information: The rectifier stage is directly located before the filter module within 2-pole's signal path.

> ✻ You can use the rectifier as pitch-doubler when using simple waveforms as input signal.

Type Selector

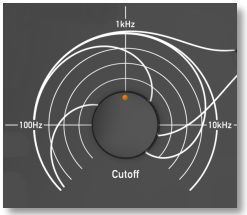
LP / BP / HP

Selects the filter type:



- The *LP Lowpass* cuts frequencies above the cutoff point.
- The *BP Bandpass* cuts frequencies both below and above the cutoff point. As a result, the sound character gets thinner.
- The *HP Highpass* cuts frequencies below the cutoff point. It is useful to thin out a sound's bass.

Cutoff



Cutoff controls the corner frequency of the lowpass and highpass filter types and the center frequency of the band pass. You can bring in more movement to the sound by modulating the cutoff frequency via the LFO or the envelope follower.

Resonance

Resonance is the emphasis around the corner frequency. Use lower values to give more brilliance to your sound. At higher values, a sound gets the typical filter character with a strong boost around the cutoff frequency. When the setting is raised above the center position, the filter starts to self-oscillate producing a wave ranging from sine to a square-like.

Env Mod

(= Envelope Modulation Amount). This bipolar control sets the amount and direction of the envelope modulation on the cutoff frequency. For positive settings, the filter cutoff frequency is increased by the envelope, for negative settings, the cutoff frequency is decreased. Use this parameter to change the timbre of the sound over time. Sounds with a hard attack usually have a envelope amount that makes the start phase bright and then closes the filter to get a darker sustain phase.

Drive

Drive saturates the signal. If turned to the leftmost setting, no saturation will be added or, in other words, the signal will remain clean. The more it is turned up, the more harmonics will be added to the signal, resulting in a distorted character. For your information: the saturation stage is located behind the filter module within 2-pole´s signal path.

✻ **Drive** is well suited for signals that use some filter resonance.

Envelope Section

The 2-pole Filter offers an envelope that can be triggered from various sources.

Mode Selector

The **Mode Selector** determines the trigger behaviour of the envelope.

- **Pulse Trigger** (topmost setting) generates a short pulse that can be retriggered after the **Hold Time** setting. You can set the trigger sensitivity by using the **Threshold** control.

> In this mode, keep **Attack** close to the minimum to let the envelope the time to rise.

- **Gate Trigger** (middle setting) generates a continous state that lasts as long as **Hold Time**. You can set the trigger sensitivity by using the **Threshold** control. **Hold Time** can lenghten the trigger time, if necessary.
- **Envelope Follower** (downmost setting) means, that the filter envelope is driven by the input signal itself. **Threshold** and **Hold Time** have no influence at all.

> To disable the trigger system, set **Mode** to **Pulse Trigger**, **Threshold** and **Hold Time** to zero.

Attack

Determines the attack rate or amount of time it takes for the envelope to rise.

Decay

Decay is the rate used for the envelope to go down.

Threshold

Threshold determines the sensitivity of the envelope trigger. Signals exceeding the level trigger the envelope.

If **Mode Selector** is set to Envelope Follower, **Threshold** has no influence at all.

Take a look at the **Trigger LED** while adjusting the **Threshold** sensitivity.

Hold Time

If **Mode Selector** is set to **Gate Trigger**, **Hold Time** determines how long the envelope is in attack phase.

If **Mode Selector** is set to **Pulse Trigger**, **Hold Time** determines the minimum time before any retrigger.

Trigger Button / LED

If **Mode Selector** is set to **Gate Trigger** or **Pulse Trigger**, you can use the **Trigger** button to start the envelope manually whenever you want. This is regardless of the **Threshold** setting.

If **Mode Selector** is set to **Envelope Follower**, the **Trigger** button has no influence at all.

The **Trigger LED** lights up, whenever a trigger condition occurs: either by crossing the threshold level, **Trigger** button or a signal to **Gate** input.

LFO Section

The 2-pole Filter is equipped with a low frequency oscillator (LFO) that can be used for cutoff modulation purposes. The LFO generates a periodic triangle waveform with adjustable frequency and depth.

Depth

This knob controls the modulation depth. The basic principle: the higher the value, the more intensive the LFO modulation. If you do not want to use a LFO filter modulation, turn **Depth** into the leftmost setting.

Speed

Speed sets the frequency of the LFO depending on the position of the **Range** selector.

At low settings, it might take some time for the LFO to perform a complete cycle while higher settings are up to the audible range.

By the way: The LED above the **Speed** knob is pulsating rhythmically to the LFO frequency.

Range

This selector controls the basic speed of the LFO:

- **Fast** uses a very fast LFO speed range that goes up to audio level. This adds a tonal element to your processed audio signal.
- **Slow** uses a slow LFO speed for periodic filter movements.
- **Gemütlich** ("comfortable") uses a very relaxed LFO speed for slow modulations. It is perfectly suited for modulating pads and strings.

Appendix

Technical Data

Power Supply

Maximum current consumption:	150 mA
Input Voltage:	9V – 15V DC, negative sleeve

Dimensions and Weight

Width:	185 mm
Depht:	185 mm
Height (including knobs):	65 mm
Total weight:	1,1 kg

Glossary

Amount

Describes to which extent a modulation influences a given parameter.

Amplifier

An amplifier is a component that influences the volume level of a sound via a control signal. This control signal is often generated by an envelope or an LFO.

Band Pass Filter

A band pass filter allows only those frequencies around the cutoff frequency to pass. Frequencies both below and above the cutoff point are damped.

Decay

"Decay" describes the descent time of an envelope once the Attack phase has reached its zenith and the envelope drops to the level defined for the Sustain value.

Envelope

An envelope is used to modulate a sound-shaping component within a given time frame so that the sound is changed in some manner. For instance, an envelope that modulates the cutoff frequency of a filter opens and closes this filter so that some of the signal's frequencies are filtered out. An envelope is started via a trigger, usually a fixed trigger. Normally, the trigger is a MIDI Note. The classic envelope consists of four individually variable phases: Attack, Decay, Sustain and Release. This sequence is called an ADSR envelope. Attack, Decay and Release are time or slope values, and Sustain is a variable volume level. Once an incoming trigger is received, the envelope runs through the Attack and Decay phases until it reaches the programed Sustain level. This level remains constant until the trigger is terminated. The envelope then initiates the Release phase until it reaches the minimum value.

Filter

A filter is a component that allows some of a signal's frequencies to pass through it and dampens other frequencies. The most important aspect of a filter is the filter cutoff frequency. Filters generally come in four categories: low pass, high pass, band pass, and band stop. A low pass filter dampens all frequencies above the cutoff frequency. A high pass filter in turn dampens the frequencies below the cutoff. The band pass filter allows only those frequencies around the cutoff frequency to

pass, all others are dampened. A band stop filter does just the opposite, i.e. it dampens only the frequencies around the cutoff frequency. The most common type is the low pass filter.

Filter Cutoff Frequency

The filter cutoff frequency is a significant factor for filters. A low pass filter dampens the portion of the signal that lies above this frequency. Frequencies below this value are allowed to pass through without being processed.

High Pass Filter

A high pass filter dampens all frequencies below its cutoff frequency. Frequencies above the cutoff point are not affected.

LFO

LFO is an acronym for low-frequency oscillator. The LFO generates a periodic oscillation at a low frequency and features variable waveshapes. Similar to an envelope, an LFO can be used to modulate a sound-shaping component.

Low Pass Filter

Synthesizers are often equipped with a low pass filter. A low pass filter dampens all frequencies above its cutoff frequency. Frequencies below the cutoff point are not affected.

Modulation

A modulation influences or changes a sound-shaping component via a modulation source. Modulation sources include envelopes, LFOs or MIDI messages. The modulation destination is sound-shaping component such as a filter or a VCA.

Overdrive

An Overdrive distorts the input signal by amplifying it drastically and clipping the resulting signal to a certain output level. Overdrive effects produce "warm" overtones at quieter volumes and harsher distortion, as gain is increased.

Rectifier

A rectifier is an electrical circuit that converts a ground centered, positive and negative audio waveform to a positive only waveform.

2-pole Filter use a full-wave rectification where the negative half of the waveform is sign inverted.

Release

An envelope parameter. The term "Release" describes the descent time of an envelope to its minimum value after a trigger is terminated. The Release phase begins immediately after the trigger is terminated, regardless of the envelope's current status. For instance, the Release phase may be initiated during the Attack phase.

Resonance

Resonance is an important filter parameter. It emphasizes a narrow bandwidth around the filter cutoff frequency by amplifing these frequencies. This is one of the most popular methods of manipulating sounds. If you substantially increase the resonance, i.e, to a level where the filter begins self-oscillation, then it will generate a relatively clean sine waveform.

Sustain

An envelope parameter. The term "Sustain" describes the level of an envelope that remains constant after it has run through the Attack and Decay phases. Sustain lasts until the trigger is terminated.

Trigger

A trigger is a signal that activates events. Trigger signals are very diverse. For instance, a MIDI note or an audio signal can be used as a trigger. The events a trigger can initiate are also very diverse. A common application for a trigger is to start an envelope.

Volume

The term describes a sound's output level

EG Konformitätserklärung/ Declaration of Conformity

des Herstellers / *of the manufacturer:*

Waldorf Music GmbH
Lilienthalstr. 7
53424 Remagen / Germany

Verantwortliche Person / *Responsible person:*

Stefan Stenzel

erklärt hiermit, dass das Produkt / *will be hereby declared that the following named product*

Waldorf 2-pole Filter

Gerätetyp / *Device type:* **Synthesizer**

Gerätenummer / *Device number*: **426012638050**

in Übereinstimmung mit den Richtlinien,

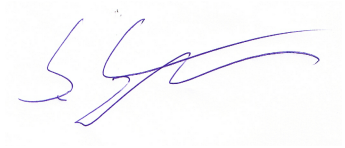
conforms to the requirements

2004/108/EG und 2006/95/EG

in Verkehr gebracht wurde. Für die Konformitätserklärung wurde nachstehende Norm angewandt:

The following standards have been used to declare conformity:

EN 55013



Remagen, 17th of February 2014

Stefan Stenzel, Geschäftsführer

Stefan Stenzel, Board Of Managment

CE

Am 15.12.2004 wurde die überarbeitete Richtlinie 2004/108/EG zur Elektromagnetischen Verträglichkeit von der Europäischen Kommission veröffentlicht (AB. L 390/2004). Sie ersetzt die bisher geltende EMV-Richtlinie 89/336/EWG.

Im Zusammenhang mit dieser Überarbeitung gelten folgende Übergangsfristen: Im Juli 2007 wird die bisher geltende Richtlinie (89/336/EWG) aufgehoben. Die Übergangsfrist zur Anwendung der neuen Richtlinie (2004/108/EG) endet am 20. Juli 2009.

Normen für Audio

EN 55013 EN 55020 EN 61000-3-2 EN 61000-3-3)

EN 55013

Ton-und Fernseh-Rundfunkempfänger und verwandte Geräte der Unterhaltungselektronik -Funkstöreigenschaften -Grenzwerte und Messverfahren (IEC/ CISPR 13: 2001, modifiziert

+ A1: 2003); Deutsche Fassung EN 55013: 2001 + A1: 2003

EN 55020

Ton-und Fernseh-Rundfunkempfänger und verwandte Geräte der Unterhaltungselektronik -Störfestigkeitseigenschaften - Grenzwerte und Prüfverfahren (IEC/ CISPR 20: 2002 + A1: 2002); Deutsche Fassung EN 55020: 2002 + A1: 2003

EN 61000-3-2

Elektromagnetische Verträglichkeit (EMV) – Teil 3-2: Grenzwerte – Grenzwerte für Oberschwingungsströme (Geräte-Eingangsstrom £ 16 A je Leiter) (IEC 61000-3-2: 2000, modifiziert) Deutsche Fassung EN 61000-3-2: 2000

EN 61000-3-3

Elektromagnetische Verträglichkeit (EMV) - Teil 3-3: Grenzwerte – Begrenzung von Spannungsänderungen, Spannungsschwankungen und Flicker in öffentlichen Niederspannungs-Versorgungsnetzen für Geräte mit einem Bemessungsstrom £ 16 A je Leiter, die keiner Sonderanschlussbedingung unterliegen (IEC 61000-3-3: 1994 + A1: 2001) Deutsche Fassung EN 61000-3-3: 1995 + Corrigendum: 1997 + A1: 2001

Andere Normen unter

http://www.ce-zeichen.de/nsp.htm

2006/95/EG Elektrische Betriebsmittel (Niederspannungsrichtlinie)

FCC Information (U.S.A.)

1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT! This product, when installed as indicated in the instructions contained in this Manual, meets FCC requirements. Modifications not expressly approved by Waldorf may void your authority, granted by the FCC, to use this product.

2. IMPORTANT: When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. NOTE: This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class „B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determinated by turning the unit „OFF" and „ON", please try to eliminate the problem by using one of the following measures: Relocate either this product or the device that is being affected by the interference. Utilize power outlets that are on branch (Circuit breaker or fuse) circuits or install AC line filter/s. In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable. If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distributed this type of product. The statements above apply ONLY to products distributed in the USA.

Canada

The digital section of this apparatus does not exceed the „Class B" limits for radio noise emissions from digital apparatus set out in the radio interference regulation of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de briut radioelectriques depassant les limites aplicables aux appareils numeriques de la „Classe B" prescrites dans la reglement sur le brouillage radioelectrique edicte par le Ministre Des Communications du Canada. Ceci ne s'applique qu'aux produits distribués dans Canada.

Other Standards (Rest of World)

This product complies with the radio frequency interference requirements of the Council Directive 89/336/EC.

Cet appareil est conforme aux prescriptions de la directive communautaire 89/336/EC.
Dette apparat overholder det gaeldenda EF-direktiv vedrørendareadiostøj.

Diese Geräte entsprechen der EG-Richtlinie 89/336/EC.

Product Warranty

Thank you for choosing this Waldorf product. It is a dependable device and is designed to last. However, the potential for defects in material or workmanship cannot be eradicated completely. This is why we provide an extended warranty for you. This warranty covers all defects in material and workmanship for a period of one year from the date of original purchase. During this time, Waldorf Music will repair or replace the product without charge for materials or labor, provided the product was first inspected and found faulty by Waldorf Music or an authorized service center. You must first contact your dealer or distributor by telephone. Products that were mailed without prior agreement cannot be exchanged or repaired free of charge. The unit must be insured and sent prepared in its original package. Please include a detailed description of the defect. Products that were not send prepared or in the original package will be returned unopened. Waldorf Music reserves the right to upgrade the unit with the latest technological advances if necessary. This warranty does not cover defects due to abuse, operation under other than specified conditions, or repair by unauthorized persons. The warranty covers only those malfunctions caused by material or work-manship defects that occur during normal operation.

Product Support

If you have any questions about your Waldorf product, feel free to contact us via one of the four options listed below:

① Send us an email message. This is the most efficient and fastest way to contact us. Your questions will be forwarded immediately to the resident expert and you will quickly receive an answer.

support@waldorfmusic.de

② Send us a letter. It will take a bit longer, but it is just as dependable as an email.

Waldorf Music GmbH

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