

# ROCKTRON

TECHNOLOGY FOR GUITARISTS



## Reaction HUSH Instruction Manual



May be covered by one or more of the following: U.S. Patents #4538297, 4647876, 4696044, 4745309, 4881047, 4893099, 5124657, 5263091, 5268527, 5319713, 5333201, 5402498 and 5493617.

Other patents pending. Foreign patents pending.

# Compliance



Your Reaction HUSH™ pedal has been tested and complies with the following Standards and Directives as set forth by the European Union:

**Council Directive(s):** 89/336/EEC Electromagnetic  
Compatibility

**Standard(s):** EN55013, EN50082-1

This means that this product has been designed to meet stringent guidelines on how much RF energy it can emit, and that it should be immune from other sources of interference when properly used. Improper use of this equipment could result in increased RF emissions, which may or may not interfere with other electronic products.

To insure against this possibility, always use good shielded cables for all audio input and output connections. This will help insure compliance with the Directive(s).

For more information about other Rocktron products, please see your local dealer or one of our importers closest to you (listed on the Rocktron website ([www.rocktron.com](http://www.rocktron.com))).

Read all instructions contained in this manual.

Keep these instructions

Heed all warnings

Follow all instructions.

Do not use this apparatus near water.

Clean with dry cloth

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# Precautions

Refer all service to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply or plug is damaged, liquid has been spilled or objects have fallen into the apparatus or if the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

DO NOT ATTEMPT TO SERVICE THIS EQUIPMENT. QUALIFIED PERSONNEL SHOULD SERVICE THIS EQUIPMENT ONLY. DO NOT MAKE ANY INTERNAL ADJUSTMENTS OR ADDITIONS TO THIS EQUIPMENT AT ANY TIME OR TAMPER WITH INTERNAL ELECTRONIC COMPONENTS AT ANY TIME. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID THE WARRANTY OF THIS EQUIPMENT AS WELL AS CAUSING A SHOCK HAZARD.

## OPERATING TEMPERATURE

Do not expose this unit to excessive heat. This unit is designed to operate between 32 F and 104 F (0 C and 40 C). This unit may not function properly under extreme temperatures.

Do not block any ventilation openings (if applicable). Install in accordance with the manufacturer's instructions.

Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.

This product is not equipped with a plug or cable. This pedal runs on a 9 Volt Battery, if a 9Volt DC adapter is the used please follow adapter manufacturer's operation instructions. Only used attachments/accessories specified by the manufacturer.

Do not use this product with any case, stand tripod, bracket or table that is not specified by the manufacturer. Insure that the case, stand, tripod, bracket etc. is properly adjusted and setup (follow all instructions). Extra care and caution should be taken to avoid tip over and injury.

Unplug this apparatus during lightening storms or when unused during long periods of time.

# Introduction

Got hiss? Get HUSH! It's Rocktron's acclaimed noise reduction for guitarists, now in a compact package that takes up less space on your pedal board. You asked, and now you receive. The Reaction HUSH, when used properly, will wipe out hiss, unwanted feedback and pickup buzz. The Reaction HUSH pedal delivers 65dB of signal cleanup, while your music signal integrity remains unaffected. In other words, get rid of the noise without altering your tone!

Guitar Player Magazine wrote that a "HUSH pedal will work for all guitar-related noise problems: it's perfect" and "its potent noise-killing abilities will be fully appreciated."

Rocktron's Reaction Series pedals are built into a rugged metal slim form factor chassis, taking up as little space as possible on your pedal board. The Reaction HUSH is a TRUE BYPASS pedal: when you turn it off...it is out of your signal path!

Plug the Reaction HUSH in AFTER distortion boxes, wahs, noisy vintage effects, or other noisy units and turn the THRESHOLD control knob until the noise goes away. It's that easy! Unlike noise "gates" that chop off the end of your notes, or ruin your sustain, the Reaction HUSH is actually a form of single-ended noise reduction that tracks your signal all the way and pushes the noise floor down below the point where your ear can hear the noise. The Reaction HUSH will not alter your sustain or chop the end of your notes. Simply use the Threshold knob to smooth out your signal while saying goodbye to noise forever!

## Introduction continued....

Here's more HUSH tips: For maximum noise reduction results, place the Reaction HUSH after your distortion and modulation effects (chorus, flanger, phaser, etc.) but before any delay or reverb effects. If you are already comfortable rolling back your guitar's volume pot, simply turn your distortion and other effects in the chain before the HUSH to "ON", roll back your volume pot, adjust the HUSH Threshold control to remove any hiss you hear, and you are ready to go!

Make sure you pay attention to the proper setup by placing the Reaction HUSH AFTER your noisy stomp boxes or in your amp's effects loop. The Reaction HUSH is NOT designed to take the input directly from your guitar WITHOUT some processing happening between the guitar and the noise reduction. When setup correctly, with your signal going from your preamp and effects, or from your distortion and effects, into the Reaction HUSH, you will love how it cleans up the excess noise, including pickup buzz! The Reaction HUSH can also be used in your amplifier's effects loop. However, if you are running multiple effects through this loop, the HUSH should always be the last dynamic device in the signal chain, but before digital delays or reverbs.

The Reaction HUSH will give you the same great HUSH noise reduction used by thousands of high profile artists for years! Add true bypass and the Reaction HUSH becomes a great addition to any pedal board.

The footswitch on the Reaction HUSH controls On/Off status as shown by the LED indicator. Reaction stomp boxes run on a 9V Alkaline battery, or may also be powered by Rocktron's DC OnTap Universal Power Supply adaptor.

# Descriptions

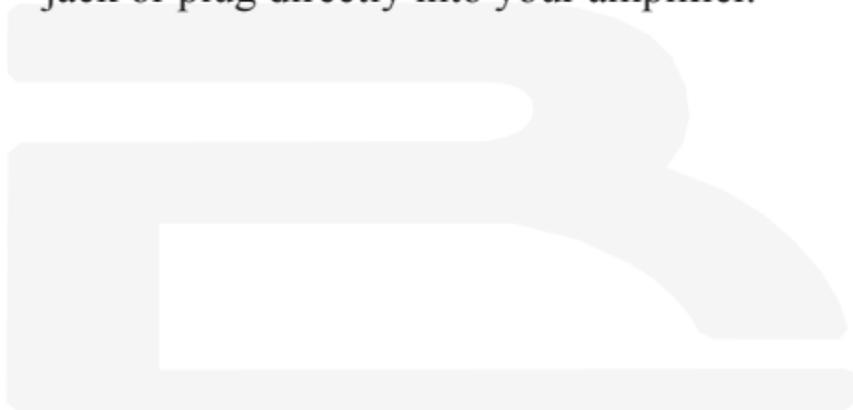


## Descriptions continued.....

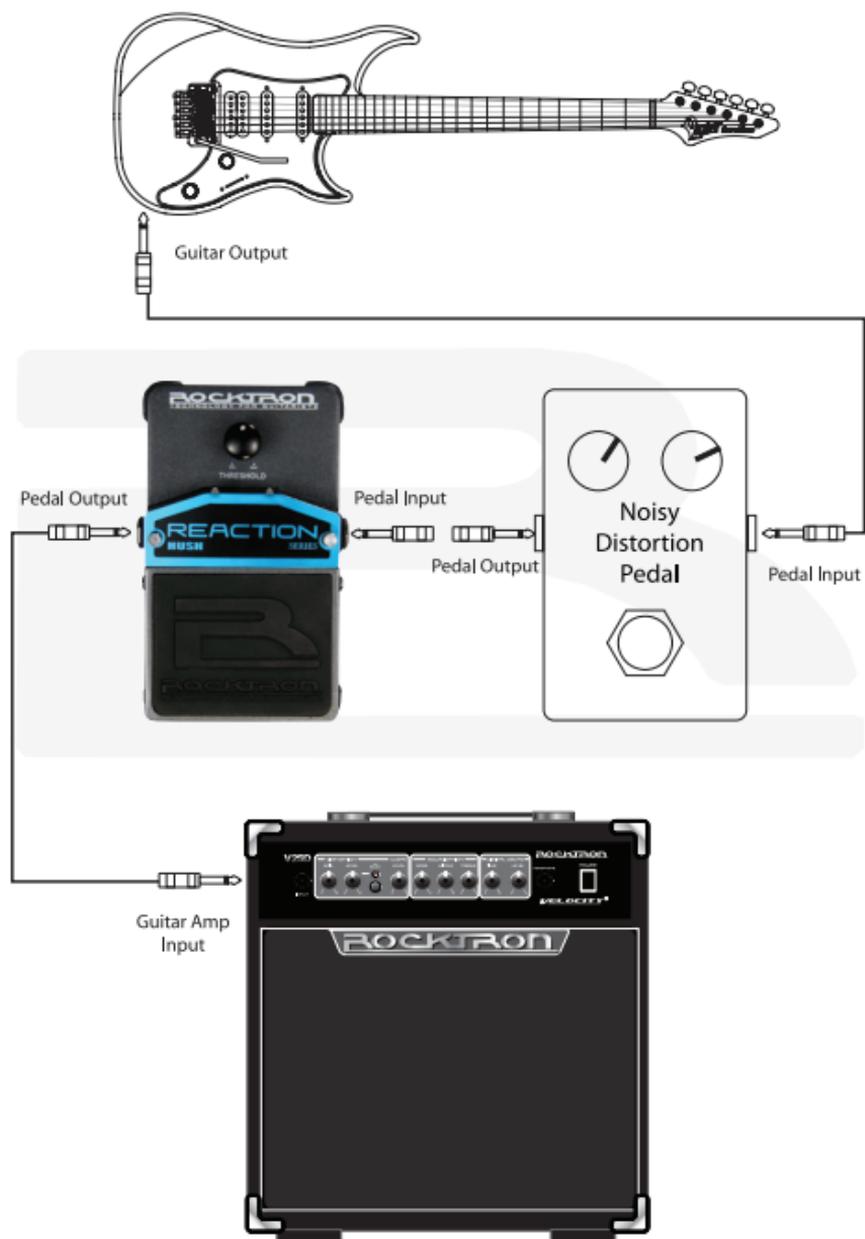
- 1 THRESHOLD Control - This control determines level of attack to cause the HUSH to activate.
- 2 9VDC Input - This input jack provides 9VDC power to the pedal from the Rocktron DC OnTap 9V power supply (sold seperately).
- 3 ON/OFF Leds - These LEDs shows if the pedal is on or off. When the LED is lit the pedal is on. When the LED is not lit the pedal is off.
- 4 BATTERY COMPARTMENT and COVER - The 9V battery can be found in this compartment.
- 5 INPUT Jack - Using a standard 1/4" guitar cable, plug your guitar into this jack.
- 6 THUMB SCREWS for Battery Compartment. Unscrew these thumb screws to access the battery compartment.

## Descriptions continued.....

- 7 FOOTSWITCH - Use this switch to turn on or off the pedal. The On/Off Led will show you if the pedal is on or off.
- 8 OUTPUT Jack - Using a standard 1/4" guitar cable you can plug in another pedal from this jack or plug directly into your amplifier.



# Typical Connection



## **HUSH Information**

In most applications, the signal from an instrument being played is much louder than the noise level. Therefore, much of the noise is not heard when an instrument is being played. However, when you stop playing or let a note decay, the instrument level drops below the noise level and the noise becomes much more audible. Setting the THRESHOLD controls just above the level of the noise causes The Pedal to begin to decrease the output level so that the noise is never heard.

The Pedal incorporates the latest advancements in HUSH noise reduction technology. HUSH The Pedal's discrete threshold control circuit utilizes a voltage-controlled amplifier (VCA) as a downward expander which can control the gain between the input and output of The Pedal from unity to over 60dB of gain reduction. When the input signal is above the threshold level set by the THRESHOLD control, the VCA will remain at unity gain (i.e. the output level will remain equal to the input level). As the amplitude drops below the threshold point, downward expansion will begin.

## **HUSH Information**

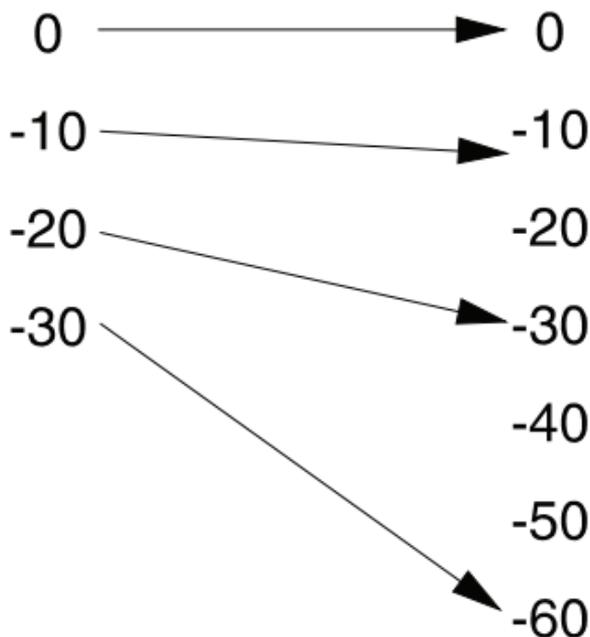
When downward expansion begins, the VCA acts like an electronic volume control and gradually begins decreasing the output signal relative to the input signal. For example, if the input signal were to drop below the threshold point by 10dB, the output would drop approximately 12dB. As the input signal drops further below the threshold point, downward expansion increases exponentially. This means that if the input signal dropped 20dB below the threshold point, the output level would drop approximately 30dB. A 30dB drop below the threshold would result in a drop of 60dB of the output signal (30dB of gain reduction). The absence of any input signal will result in the expander reducing the gain so that the noise floor is inaudible.

# TYPICAL EXPANSION RATIO

(with a 0dB threshold)

INPUT LEVEL  
(dB)

OUTPUT LEVEL  
(dB)



*As the input signal level decreases further below the threshold point, the output signal drops more rapidly.*

The Variable Integrated Release (V.I.R.) technology contained in each HUSH circuit automatically adjusts the release rate of the expander based on the dynamic decay rate of the incoming signal. If the input signal stops suddenly, downward expansion will occur rapidly (similar to a gate). If the input signal decays slowly, expansion will occur slowly without disrupting the dynamic decay of the input signal.

The THRESHOLD control should be adjusted by listening to the noise floor while not playing. Turn the THRESHOLD control clockwise to the point where the noise floor becomes inaudible. Turning too far past this point will cause the downward expander to attenuate the output level too quickly and not allow the signal to decay as long as it should.

# Specifications:

Maximum Input	7dBu
Maximum Output	-1dBu
Input Impedance	220k $\Omega$
Output Impedance	1k $\Omega$
Current Consumption	15mA
Power Requirements	9V Alkaline Battery or Rocktron DC OnTap Universal Power Supply (sold seperately). Negative Tip
Dimensions	125mm x 78mm 61mm 5" x 3.25" x 2.5"
Weight	0.7kg 1.5lbs

DC 9V



## How to change the battery:

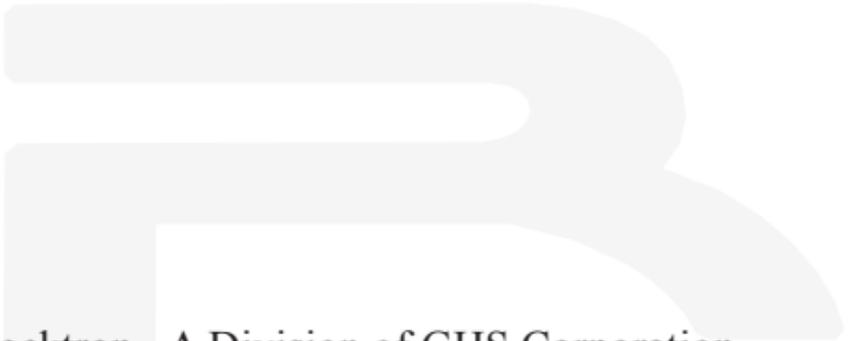
To change the battery, remove the thumb screws on the top of the pedal and remove the battery compartment cover. Remove the old battery and replace it with a new 9V Alkaline battery. Replace battery in the same area as the old battery was located. Place the battery compartment cover on the pedal and re-insert the thumb screws.

*Save yourself tons of money in batteries by using the Rocktron DC OnTap Universal Power Supply to power this pedal (sold seperately). The Rocktron DC OnTap provides a constant flow of power to the pedal, unlike a battery that will degrade over time. The Rocktron DC OnTap Univeral Power Supply can also power up to 20 pedals and can be used with both 110V and 220V power sources.*

*Check, [www.rocktron.com](http://www.rocktron.com) for more information on the DC OnTap and where to purchase.*

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