

ROCKTRON

TECHNOLOGY FOR GUITARISTS

MicroHUSH™ Instruction Manual



Compliance

Your MicroHUSH™ 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)).

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 pedal runs on a 9 Volt DC Power Adapter (not included). Follow adapter manufacturer's operation instructions. Rocktron is not responsible for misuse of a power supply other than the recommended Rocktron DC OnTap adapters or PowerTap.

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! The MicroHUSH is Rocktron's world famous noise reduction in a micro chassis that will take up less space on your pedalboard. The MicroHUSH will wipe out hiss, unwanted feedback and pickup buzz by providing up to 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 MicroHUSH pedals are built into a compact yet a rugged chassis, minimizing the footprint it has on your pedal board. The MicroHUSH is a TRUE BYPASS pedal: when you turn it off...it is out of your signal path!

Plug the MicroHUSH 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 MicroHUSH (and other Rocktron HUSH products) are 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 MicroHUSH 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!

The MicroHUSH does not eliminate 60 cycle ground loop hum. If you are experiencing 60 cycle ground loop hum then we recommend the Rocktron Buzz Kill Audio Isolation transformer (see www.rocktron.com for more information on the Buzz Kill.)

Introduction continued....

Here's more HUSH tips: For maximum noise reduction results, place the MicroHUSH 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 MicroHUSH AFTER your noisy stomp boxes or in your amp's effects loop. The MicroHUSH 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 MicroHUSH, you will love how it cleans up the excess noise, including pickup buzz! The MicroHUSH 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 MicroHUSH will give you the same great HUSH noise reduction used by thousands of high profile artists for years! Add true bypass and the MicroHUSH becomes a great addition to any pedal board.

The footswitch on the MicroHUSH controls On/Off status as shown by the LED indicator. The MicroHUSH requires a 9V DC power source (not included). We recommend the Rocktron DC OnTap Universal Power Supply adaptor. More information on these power supplies can be found at the end of this manual or on our website at:

www.rocktron.com

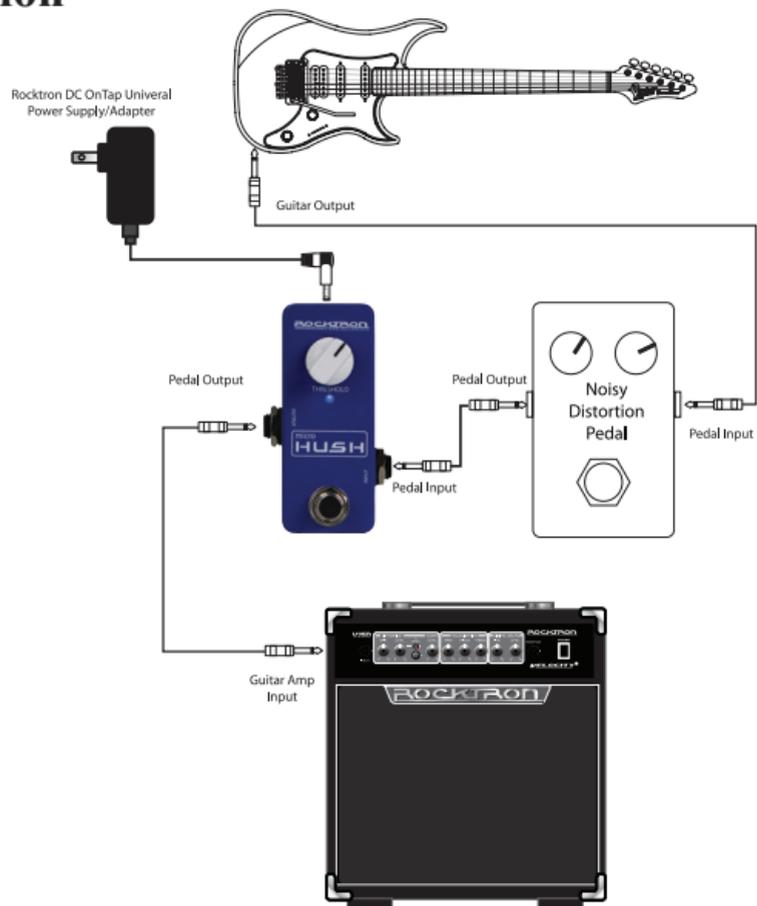
Descriptions



Descriptions continued.....

- 1 THRESHOLD Control - This control determines level of attack to cause the HUSH to activate. Attack is measured in time. Threshold is measured in dB or by the voltage/level of the signal.
- 2 9VDC Power Jack - The MicroHUSH requires 9VDC power to operate (not included/sold separately). This 2.1mm power jack (Negative Tip/Positive Barrel) provides 9VDC power to the pedal. We recommend the Rocktron DC OnTap Univeral 9V power supply. More information on the DC OnTap Line of power supplies at the end of this manual.
- 3 ON/OFF Led - This LED 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 INPUT Jack - Using a standard 1/4" guitar cable, plug the cable from the output of the noisy pedal into this jack.
- 5 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.
- 6 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 MicroHUSH to begin to decrease the output level so that the noise is never heard.

This pedal incorporates the latest advancements in HUSH noise reduction technology. The MicroHUSH'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 MicroHUSH 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.

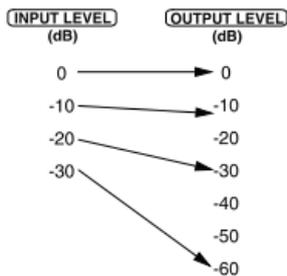
When downward expansion begins, the VCA acts like an electronic volume control and gradually begins decreasing the output signal relative to the input signal. For example, if the input signal were to drop below the threshold point by 10dB, the output would drop approximately 12dB. As the input signal 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.

HUSH Information

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.

TYPICAL EXPANSION RATIO (with a 0dB threshold)



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

Specifications:

Maximum Input	+5dBu
Maximum Output	+5dBu
Input Impedance	470k Ω
Output Impedance	1k Ω
Current Consumption	15mA
Power Requirements	9V DC Power Supply Rocktron DC OnTap Universal Power Supply (sold separately) is recommended. 2.1mm Jack Negative Tip/Positive Barrel
	DC 9V 
Dimensions	92mm Long x 54mm Wide (jack end to jack end) x 48mm Tall (from bottom to top of switch) 3 5/8" Long x 2 1/8" Wide (jack end to jack end) x 2" Tall (from bottom to top of switch)
Weight	150 grams 5.3 ounces

How to power the MicroHUSH:

The MicroHUSH requires a 9V DC power supply for operation (not included). We recommend any of these:

Rocktron DC OnTap 110V USA Plug - Model: 006-2017

Rocktron DC OnTap 220V Euro Plug - Model: 006-2018

Rocktron DC OnTap 240V UK Plug - Model: 006-2022

Rocktron DC OnTap 100V Japan - Model: 006-2033

Rocktron PowerTap (powers your whole pedalboard)

The MicroHUSH's jack accepts a 2.1mm Plug - Tip Negative/Barrel Positive

(All Rocktron DC OnTap adapters are “switching” power supplies and can be used world wide with the right plug adapter)

Save yourself tons of money in batteries by using the Rocktron DC OnTap Universal Power Supply to power this pedal (sold separately). 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 Universal Power Supply can also power up to 20 pedals and can be used with both 110V and 220V power sources.

Check, www.rocktron.com for more information on the DC OnTap and where to purchase.

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