

### 1. ONE CORD TO INSTRUMENT CONNECTOR

Despite being a common RJ45 connector, this is not a computer network interface. If you own a CRUMAR instrument with a «ONE-CORD TO FX» connector, you can use the proper cable to connect the two units together (cable not included). The instrument will send audio and power to the effect unit. Audio coming from the JACK input will override this audio connection, it's not possible to connect two audio sources at the same time. Same goes for power: plugging an external PSU will override power coming from this connector. To prevent damage to your unit, do not connect two ONE-CORD devices (two effects) together.

### 2. CONTROL KNOBS

- SWELL: this is the output level of the delay effect.
- VARISPEED: this controls the speed of the tape transport motor.
- REPEAT: this controls the number of repetitions (feedback).
- ECHO TONE: adjusts echo output equalization; darker tone clockwise, brighter counterclockwise.
- HISS: this adjusts the amount of simulated tape hiss and circuit hum. Center position corresponds to the average level you would hear on a properly serviced original tape delay unit in good condition.
- WEAR: adjusts the level of audio deterioration affecting the electronic circuitry, specifically the record and playback preamps as well as the mechanical accuracy of the tape transport. The center position corresponds to a real tape delay in good condition, with minimal wow and flutter and low distortion. At minimum setting, the distortion is removed, wow and flutter are eliminated, the junction-point jump is suppressed and all other wear-related artifacts are defeated.

### 3. PICKUP HEAD SELECTORS

The switches let you activate the three playback heads that read the virtual tape at different positions along the path. Each head produces a different delay.

- GREEN = short time delay.
- WHITE = medium time delay.
- RED = long time delay.

### 4. BYPASS FOOTSWITCH

Removes audio input from the effect (echo tail will not cut out).

### 5. INPUT LEVEL SELECTOR

This selector sets the input gain. Since this effect provides a fully analog dry-signal path (from input to output without any digital conversion), setting the selector to «HIGH» increases the output level of both the «WET» and «DRY» signals. To obtain a 1:1 ratio, the selector must be set to «LOW».

### 6. EFFECT OUTPUT

This output provides the effect output without the dry input signal.

### 7. DRY + WET OUTPUT

This output provides both the effect output and the dry input signal mixed together.

*This pedal faithfully recreates a 70s-style effect, preserving all the distinctive flaws that made the original unique. Unlike a modern fully digital echo effect, where the delayed repeats are exact copies of the input signal and can be intentionally altered with filters or other processing, in a true magnetic-tape machine certain results are inherent to the electronic and mechanical operation of the apparatus and cannot be removed. And although some of these aspects could be attributed to the structural limitations of certain units, their impact on the sound is precisely what makes these machines unique, recognizable, desirable, and ultimately musical and pleasing. For example, hiss is an integral part of any sound recorded to and played back from magnetic tape, and despite all efforts in tape quality and in the design of the record/playback circuitry, in a tape-echo machine, where the tape is only a few centimeters long and runs in a continuous loop, its deterioration is naturally rapid and unavoidable, making certain defects more evident than in standard reel-to-reel recorders. Other factors that significantly affect the final sound include the frequency response of both the tape and the circuitry, which can never be perfectly flat. Another aspect, not always obvious but important, is the change in bandwidth as tape speed varies: the faster the tape runs, the shorter the delay time and the clearer the sound, but hiss becomes more noticeable and the output level may increase slightly; conversely, lower speeds produce longer delay times but a darker tone, less noticeable hiss, slightly lower output level, and reduced definition. If a musician seeks the sound of a tape-echo effect, they are seeking the full experience, imperfections included. However, in the virtual environment offered by digital audio and simulation, it is possible to reduce or even eliminate certain undesirable artifacts, at the expense of absolute realism. This effect can easily reach a state of self-oscillation and it can distort the sound in a transistor-fashioned way. When the junction of the tape passes around the capstan, it «slips» or jumps and sometimes it can cause unintended erasure of part of the echo tail. The tape speed is not really stable and this creates the «wow & flutter» effect: slight fluctuations in the tape speed introducing micro-variations in the delay time, which translate into corresponding pitch shifts in the repeated sound, creating the lively, organic character typical of tape echos.*

**ORIGINAL EFFECT UNIT MEASUREMENTS:**

**DELAY TIMES FOR EACH HEAD:**

Min speed: GREEN: 209 ms, WHITE: 350 ms, RED: 526 ms

Max speed: GREEN: 74 ms, WHITE: 123 ms, RED: 184 ms

The tape loop is approximately half a meter long.

Frequency range at the lowest speed: ~ 10 KHz

Frequency range at the highest speed: ~ 16 KHz

Tape duration at the lowest speed: ~ 3.5 sec

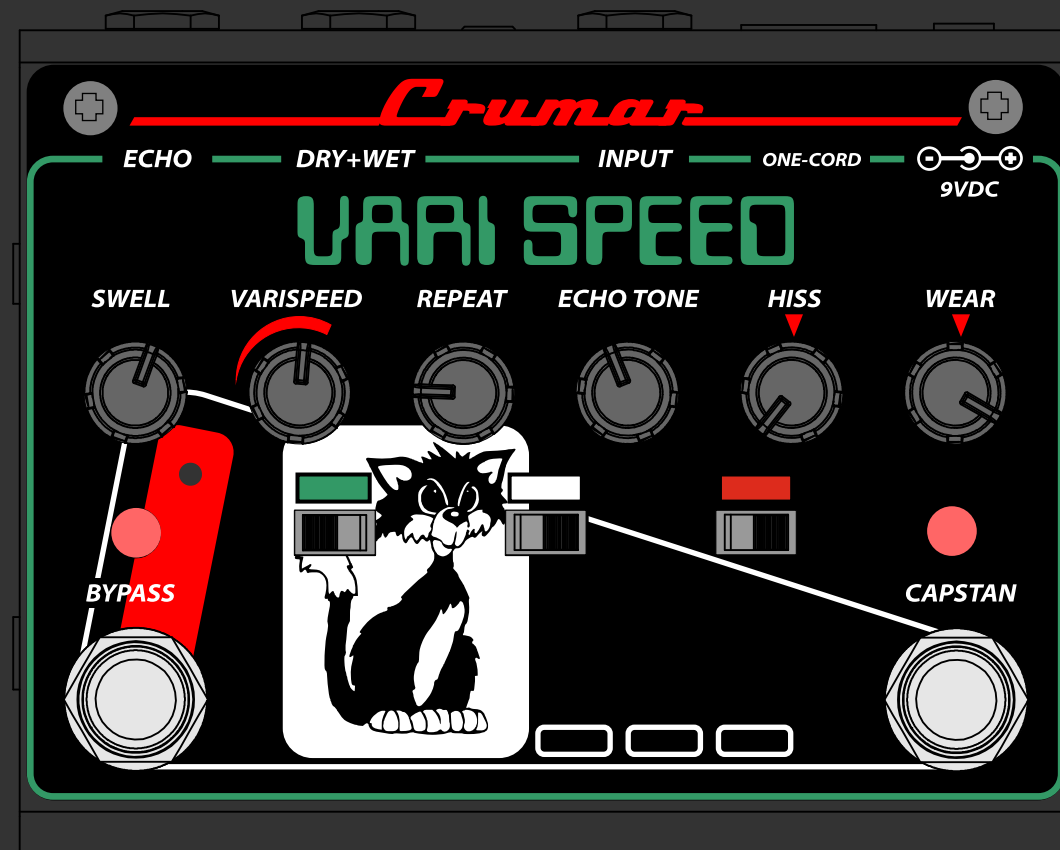
Tape duration at the highest speed: ~ 1.1 sec



**ONE-CORD RJ45 Connector is not Ethernet. Use only compatible ONE-CORD equipment.**

*This device is a professional musical instrument, it's not a toy. Please keep the instrument and the packaging bag out from the reach of small children. Do not open or modify this device, do not expose to moisture, water, direct sunlight and extreme weather, please use only the provided power supply. Do not connect it to damaged or incompatible devices, with damaged connectors, cables or power supplies. This instrument can only be used in domestic or similar environments. It may cause interferences if not correctly installed. This product complies with the european Directive 2011/65/EU on the restriction of hazardous substances. WEEE notice: the product must not be disposed of with household waste, it must be taken to the appropriate collection point.*

**MADE IN ITALY BY VMConnection - VIA LUCIO VERO 2, RONCADE (TV)- [www.crumar.it](http://www.crumar.it)**



# TAPE ECHO SIMULATOR

**FULL ANALOG DRY SIGNAL PATH  
TRUE PHYSICAL MODELING EMULATION**