



DNG-ONE DUAL NOISE GATE USER GUIDE

INTRODUCTION

In its simplest form, a noise gate is an automatic on/off switch which will mute a channel or track when the sound falls below a pre-set level, reducing or eliminating unwanted background noise like hiss, hum, and leakage from adjacent instruments etc.

It has no effect at all on the sound when the gate is open, passing the signal and any background noise equally, when the noise should effectively be masked by the music. As soon as the wanted signal stops, however, the gate will close.

The DNG-One has a full complement of controls allowing flexible and sophisticated gating, and will provide excellent results in applications including multitrack recording, sound re-enforcement, broadcasting, live gigs and multi-mic public address installations.

CONNECTIONS

- a) **Power:** UK models are supplied with a Eurolead, fitted with a 13 amp U.K. mains plug. Export models come with a Eurolead with bare wire termination, fit a suitable mains plug for your countries power supply socket. Connect this lead to the rear panel inlet socket. Always replace a blown power fuse with one of the same value: for 220v-230v 50Hz, 1.6A 250v, and for 110-120v 60Hz, 3A.
- b) **Inputs:** Unbalanced mono jack sockets, 20Kohms. Connect to the signal source to be gated with a screened lead.
- c) **Outputs:** Unbalanced mono jack sockets, connect to a load of 600 ohms or greater for maximum headroom.
- d) **Key:** Unbalanced mono jack sockets, 10Kohms. This input allows the DNG-One's detector to respond to a signal source other than the audio that is being gated.

A gate is typically used with a mixer, connected to and from a channels insert points (breakjack), across the main stereo output, between a reverb unit and an Aux return, in line between an instrument and an amplifier, etc.

CONTROLS AND OPERATION

1) **Threshold:** The gate decides what is useful audio and what is noise by comparing the input level at any one moment with a user-determined Threshold level. Signals louder than the Threshold are passed to the output, and signals not reaching the threshold are muted.

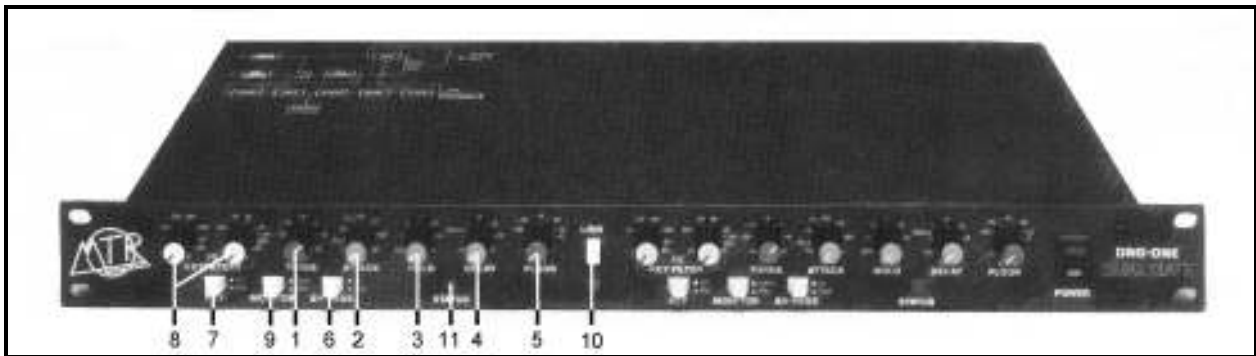
Turning the control left increases the sensitivity, lowering the threshold point, and turning to the right makes it less sensitive. In use, the knob should be set fully left and rotated to the right until the background noise no longer turns the gate on. This adjustment must be made with care; if the Threshold is set too high, the front of the wanted signal may be clipped off. Note too, that increasing the level of the signal fed into the gate has the same effect as lowering the Threshold.

2) **Attack:** This control determines how *quickly* the gate will open once the input signal exceeds the Threshold. A fast attack usually suits short, percussive sounds like a snare drum, and can indeed enhance the effect by giving extra emphasis to the very start of the signal. Slower attack times may be more suitable for material with a naturally slower 'rise' time, such as strings, flute, brass etc. Special effects like a 'bowed' sound from lead guitar can be achieved by using an artificially slow Attack, similar to riding a guitar's output volume with the little finger.

3) **Hold:** This control can keep the gate open even after the input signal has fallen below the Threshold level – only after the entire Hold time has elapsed does the gate begin to close. If the Input level rises above the Threshold again during the Hold cycle, it will reset and start counting once more from zero.

Rather than having the gate chopping in and out again between every phrase of a vocal, a solo, or speech, a longer Hold time can give a more natural-sounding gating by only closing during major pauses. 2½ seconds of hold time is available.

For gated reverb, the gate is triggered from its external Key input (d) fed by the dry signal, with only the reverb signal passed through the gate. By setting a shortish but noticeable Hold time (say 300 msec) and a very fast Decay (4) time, the dry signal is followed by a burst of reverb and then silence just before the next signal sounds. See also Floor (5).



4) **Decay:** When the Hold cycle is completed, the gate will close at a speed determined by the Decay control. Again, this should be set for the most natural effect when the gated signal is heard in the context of the complete mix. As a total of 32 seconds of decay is available, automatic and repeatable fade-outs of complete stereo mixes are possible, with greater smoothness and precision than can be achieved by pulling faders down by hand.

5) **Floor:** It is not always desirable to mute background noise completely, since a noisy signal switched quickly on and off can be more irritating than if it were left on all the time. So, adjust the Floor to allow a little of the natural ambience through when needed. The range covers -70dB (total shutdown) to -1dB (almost completely open); start at -70 and slowly rotate until the most natural result is obtained.

6) **Bypass:** Use this switch for an instant a/b comparison of the gated and ungated signals. In the 'out' position (button in) the audio signal goes direct to the outputs.

7) **Key:** The input detector is normally triggered by the signal being gated. Alternatively, it can be made to respond to an external signal (that may have nothing to do with the signal being gated), thus allowing one signal to be turned on and off by another. Examples are: a bass drum track could be replaced with any synthesiser sound by putting the synth through the gate, and using the bass drum sound to trigger the gate via the Key input. In other words, the bass drum is "playing" the synth. Ragged bass and drum tracks can be tightened up in the same way with the bass drum Keying the bass guitar. White noise can be added to a snare drum, using the snare signal as a Key. Gated reverb also makes use of the key facility.

8) **Key Filters:** Often a gate can be triggered erratically because the mic used is picking up a lot of ambient noise (hi-hat on a snare mic, guitar on a vocal mic, traffic noise in an outdoor location, etc). The solution is to tailor the response of the gate detector to ignore frequencies outside those of the gated sound using the Key Filters.

For normal gating the filters are set fully left and fully right (25Hz and 34kHz), allowing the full frequency range to pass. Various settings of these two filters allows you precisely to define the frequency band in which the wanted signal is located, and thus to reject other parts of the sound that may cause erratic gating. Note that the gated signal will not itself be equalised in any way – only the detector circuit hears (and responds to) the equalised sound.

- 9) **Monitor:** To hear exactly what is happening when the filters are used, or to listen to an external Key signal, select 'Key' on the Monitor button.
- 10) **Link:** When the gate is used in stereo, such as gating the left and right master output of a mixer, press the Stereo Link button to ensure perfect stereo tracking and prevent image shifting. When linked, both channels are triggered by channel 1, and whichever channel has the more sensitive settings (mainly the Threshold) will become the master channel.
- 11) **Status:** These leds give a visual indication of when the gate is open or shut, illuminating during the 'shut' mode.

SPECIFICATIONS

Input impedance:	20K Ω unbalanced	Threshold:	-44dB to +20dB
Key input impedance:	10K ohms	Attack:	10 μ s to 200 msecs
Output impedance:	600 ohms	Hold:	8 msecs to 2.5 secs
Frequency response:	15Hz – 20kHz, \pm 0.5dB @ 0dB	Decay:	10 msec to 32 secs
Max input level:	+20dB (+22dBm) ref 1kHz	Floor range:	-70dB to -1dB
Distortion:	0.02% ref 1kHz @ 0dB	Connections:	1/4" jacks, unbalanced
Noise, unweighted :	open: -65dB, closed -66dB	Power:	230 volts AC, 50-60Hz, 14 watts
Low Key Filter:	25Hz – 3.6kHz, 12dB/octave	Dimensions:	482w x 240d x 44h (mm)
High Key Filter:	200Hz – 32kHz, 12dB/octave	Weight:	4.5 kilos

Also from MTR Ltd: multitrack mixers, graphics, audio patchbays, power amps, active and passive DI boxes, pre-amps, phantom power supplies, passive splitters, 9v and 12v DC multi-way power supplies for keyboards, effects and radio mics, various 19" racks, and acoustic foam sound absorption panels.

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