Dur-Bul Instruments

0009

3U/4HP Passive Analog Multiplexer

Dur-Bul Instruments

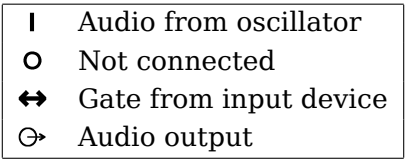
1 Operation

The Dur-Bul Instruments 0009 passive analog multiplexer allows a single output to be switched between two inputs under the control of a 5V-level gate signal. This is done passively, meaning without a separate power supply connection, allowing for flexibility in system design by reducing the total number of power connections needed.

Unused inputs are grounded, providing silence when used for audio signals or a 0V level when used as control voltages. This allows use of the Dur-Bul Instruments 0009 as either a two-input multiplexer or an on-off switch.

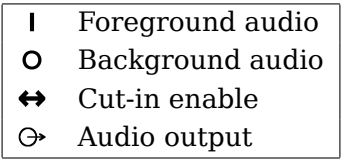
2 Typical Uses

Hard on-off articulation



Turn an oscillator and an input device into a minimal instrument with abrupt articulation for a classic chiptune sound.

Audio cut-in



Mute background sound and replace with a foreground signal under control of the gate signal. Can

be used for a single-tracked percussion effect or to enforce mutual exclusivity of layers.

Signal chain swapping

I	Signal chain 1 output
O	Signal chain 2 output
↔	Square wave LFO output
⊖→	Audio output

The same audio signal source can be passed through two different signal chains and recombined at a multiplexer under the control of a LFO, allowing real-time timbre shifts.

Rapid CV switching

I	CV source 1
O	CV source 2
↔	5V LFO output
⊖→	Oscillator CV input

Allows combining of two melodic lines through rapid switching.

CV drone

I	CV from input device
O	CV from drone source
↔	Gate from input device
⊖→	Oscillator CV input

Similar to hard articulation, but switches in a background melodic line instead of silence.

Clock source muxing

I	Clock source 1
O	Clock source 2
↔	LFO or subdivided clock
⊖→	Clock input of next module

To add some diversity to rhythms, differently-subdivided clocks can be selected using a further-subdivided square wave (or another source altogether) as input.

3 Specifications

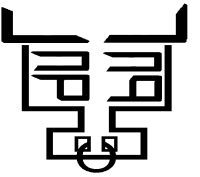
Min. V_{gate}[2]	-20V
Min. $V_{\text{gate on}}$[1]	4.75V
Max. V_{gate}[2]	20V
Min. $I_{\text{gate on}}$[1]	8mA
Max. T_{switch}	2ms
Max. Z_{on}	1.5kΩ ‖0.8nF

[1]Threshold for selecting input 1.
[2]Limits for preventing damage.

The inputs of the Passive Analog Multiplexer will not be damaged by any voltages used in a typical modular synthesizer. Impedances are appropriate for audio signals driving a high-impedance input. Care must be taken when using the multiplexer for control voltage signals to only use with very high-impedance buffered inputs to avoid tuning issues.

4 Care

The Dur-Bul Instruments 0009 Passive Analog Multiplexer can be expected to last for decades of use with only basic cleaning. The use of ceramic capacitors and a solid-state relay eliminates many of the common wear points on similar products. The connectors may be cleaned with a plastic-safe contact cleaner if they become oxidized.



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