Qu-Bit — Data Bender

- Manual PDF

Qu-Bit Data Bender Cheat Sheet

Data Bender is a circuit bent digital audio buffer module for Eurorack, with high-fidelity 96kHz/24-bit audio, stereo I/O, and extensive real-time control for lo-fi, glitch, "bent" audio manipulation.

I/O Reference

Inputs

Jack	Function	Voltage Range / Notes
left	Audio In, Left (normals to right if empty)	Modular/Line Level*
right	Audio In, Right	Modular/Line Level*
clock	External Clock In	Standard modular gate/trigger
time	Time (buffer length) CV	-5V to +5V (adds to knob)

Jack	Function	Voltage Range / Notes
repeats	Repeats CV	-5V to +5V (adds to knob)
bend	Macro: Bend on/off (Gate/Trig), Micro: playback reverse (Gate/Trig)	Modular gate/ trigger
break	Macro: Break on/off (Gate/Trig), Micro: Traverse/Silence select (Gate/Trig)	Modular gate/ trigger
corrupt	Corrupt on/off (Gate/Trig, or secondary: Reset Input)	Modular gate/ trigger
freeze	Freeze buffer on/off (Gate/Trig)	Modular gate/ trigger
mix	Mix CV	-5V to +5V (adds to knob)

*Input is modular level (up to ~10Vpp), accept line level but beware of extra loud outputs if saturation is introduced.

Outputs

Jack	Function	Voltage Range / Notes
left	Audio Out, Left	Modular level, typically up to 14Vpp
right	Audio Out, Right	Modular level, typically up to 14Vpp

Panel Controls

Knobs

Control	Function	CV Response
time	Sets buffer length/sample period; Internal: 16s – 80Hz / External: clock div/mult	-5V to +5V
repeats	Divides buffer for "stutter"; 0 = off, more = faster stutter	-5V to +5V
mix	Dry/Wet blend: input/live vs. bent audio	-5V to +5V
corrupt	Decimate: Bit-reduce/downsample Dropout: Glitch/mute sections Destroy: Saturate/clip Selected by button	-5V to +5V
bend	Macro: tape/vinyl actions; Micro: playback speed/range/reverse	-5V to +5V
break	Macro: CD skips/stutter/silence; Micro: select buffer fragment or silence amount	-5V to +5V

Buttons & LEDs

Button	Function / LED
shift	Access secondary (edit) actions (hold) / blue when held
clock	Toggle Internal/External clock mode / LED blue (int), white (ext)
mode	Macro (blue)/Micro (green) toggle

Button	Function / LED
bend	Enable/disable macro bend or reverse(micro); disables at knob min
break	Macro: enable/disable; Micro: Traverse/Silence toggle
corrupt	Step through Decimate/Dropout/Destroy modes; color-coded
freeze	Freeze buffer (latch or momentary, edit menu)

Core Functions Summary

- **Time**: Sets main buffer window (memory period).
    - *Int*: 16s–80Hz (knob sweep)
    - *Ext*: Clock div/mult (-16x to +8x), selected at detents. LED briefly gold when crossing div/mult border.
    - CV (-5V–+5V) applies to knob.
- **Repeats**: Divides buffer (repeat/stutter), more = smaller subsections. CV (-5/+5V) applies to knob.
- **Mix**: Dry/wet blend from live input (left) to max buffer effect (right). CV (-5/+5V).
- **Corrupt**: Three modes toggled by button (hold Corrupt):
    - **Decimate (Blue)**: Bitcrush/downsample.
    - **Dropout (Green)**: Random silences, adjust length/density.
    - **Destroy (Gold)**: Soft/hard saturation; full right = hard clipped.
- **Freeze**: Toggle "freeze" (buffer is locked/all parameters still editable); latching or momentary set in edit mode.
- **Bend** (Macro Mode):
    - Simulates tape/vinyl: random playback speed, reverse, stops/pops/clicks.
    - Knob affects probability/depth and complexity.
    - Gate/button toggles on/off.

- **Break** (Macro Mode):
    - CD skip style: glitches, stutter, buffer jumps, silence.
    - Knob controls repeat probability and silence fraction.
    - Gate/button toggles on/off.
- **Bend** (Micro Mode):
    - Precise playback speed set (±3 octaves), press for reverse.
    - LED color: blue-forward, green-reverse, cyan/gold at integer octaves.
- **Break** (Micro Mode):
    - Knob/Repeats choose buffer subsection (Traverse).
    - Press to toggle Traverse/Silence (LED on = silence duty control).

Secondary (Shifted) Controls

Hold Shift + press below for extra features:

- **Shift + Time**: Glitch Windowing (ramps/click smoothing, indicated by Shift LED brightness/color).
- **Shift + Bend**: Stereo Mode — auto effects unique (blue) or shared (green) per channel.
- **Shift + Break**: Factory Reset (Break LED pulses white/blue confirm).
- **Shift + Corrupt**: Corrupt jack toggles from Corrupt Gate (blue) to Reset Input (green), resets buffer clock.
- **Shift + Freeze**: Freeze latching (blue) or momentary (green).
- **Shift + Clock**: All gate inputs latching (blue) or momentary (green).

Example Quick Start: "Lo-Fi Tape"

- Mode: Micro (Mode LED green)
- Mix: 100% (all the way up)
- Time: ~30% (set buffer window)

- Repeats: 0% (single buffer)
- Bend: ~45% (for tape effects)
- Corrupt: ~45% (for subtle noise/dropouts)
- SHIFT + TIME (Glitch Window): 0% (hard/no ramp for clicks & pops)

General Specs

- **Width/Depth**: 14HP / 28mm
- **Power**: +12V: 58mA, -12V: 60mA
- **Sampling**: 96kHz, 24-bit, >1 min stereo memory

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