Intellijel KORGASMATRON II
Illustrated supplement

by Demonam
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02... LP1 / 1-pole low-pass filter
03... BP1 / 1-pole band-pass filter
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61... Expander - Drone zone 2
Input attenuator IN A (and/or B) controls the level into the filter A (and/or B).

For classic tone keep this below 12 o’clock.

**Higher gain** will suppress the resonance of the filter and change its tone.

The combination of IN A level, Q, and Q Drive knobs can alter the tone of the filter dramatically from sweet to scathing - experiment!
Input attenuator IN A (and/or B) controls the level into the filter A (and/or B).

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**Higher gain** will suppress the resonance of the filter and change its tone.

The combination of IN A level, Q and Q Drive knobs can alter the tone of the filter dramatically from sweet to scathing - experiment!
HP2 / 2-pole high-pass filter

Input attenuator IN A (and/or B) controls the level into the filter A (and/or B).

For classic tone keep this below 12 o’clock.

Higher gain will suppress the resonance of the filter and change its tone.

The combination of IN A level, Q and Q Drive knobs can alter the tone of the filter dramatically from sweet to scathing - experiment!
Input attenuator IN A (and/or B) controls the level into the filter A (and/or B).

For classic tone keep this below 12 o’clock.

**Higher gain** will suppress the resonance of the filter and change its tone.

The combination of IN A level, Q and Q Drive knobs can alter the tone of the filter dramatically from sweet to scathing - experiment!
Dual 1V/Oct sine oscillator

- Filter A coarse frequency set
- Make filter A self-oscillate
- Filter A kind of fine frequency set
- Filter B coarse frequency set
- Make filter B self-oscillate
- Filter B kind of fine frequency set

Filter A sine out

1V/Oct quantized CV

Filter B sine out

Sine A and B mix out in PARALLEL configuration
FILTER A:

IN A: Signal input to filter A. Patch a audio signal here to be filtered. The knob IN A attenuates this signal. This is normalled to the IN B input of filter B.


1V/Oct A: CV input for filter frequency calibrated for 1V/oct standard. This is normalled to the 1V/Oct CV input of filter B.

FILTER B:

IN B: Signal input to filter B. Patch a audio signal here to be filtered. The knob IN B attenuates this signal. This is a switching jack, inserting a plug here will break the normal from IN A.

FM2 B: CV input to VCF B filter cutoff, attenuated with inversion by FM2 B knob. This is a switching jack, inserting a plug here will break the normal from FM2 A.

1V/Oct B: CV input for filter frequency calibrated for 1V/oct standard. This is a switching jack, inserting a plug here will break the normal from 1V/Oct A.

Advice: If you are using the Korgasmatron II in SERIAL configuration inserting a plug into IN B jack will break the internal routing from filter A which may cause confusion.
SERIAL configuration

Advice: If you are using the Korgasmatron II in SERIAL configuration inserting a plug into IN B jack will break the internal routing from filter A which may cause confusion.

XFADE position

attenuator for XFADE input

XFADE signal input

filter A out

signal to be filtered

XFADE

IN filter B

OUT B

signal to be filtered

filter A OUT

XFADE SERIAL A>B out

MIX out
PARALLEL configuration

Use MIX output if the Korgasmatron II is in PARALLEL configuration and you want to mix the filters together to one output.

- **signal(s) to be filtered**
- **filter A OUT**
- **filter B OUT**
- **XFADE**
- **MIX out**

**Diagram:**
- XFADE position
- attenuator for XFADE input
- XFADE signal input
- filter A out
- filter B out
- signal(s) to be filtered
### XFADE response - 01

<table>
<thead>
<tr>
<th>UNIPOLAR signal input [0V/+...V] ADSR illustration</th>
<th>BIPOLAR signal input [-...V/+...V] triangle LFO illustration</th>
<th>MANUAL set (no input) [CCW/CW] knob illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
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<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
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<td><img src="image10.png" alt="Image" /></td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
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</tbody>
</table>
### XFADE response - 02

<table>
<thead>
<tr>
<th>UNIPOLAR signal input</th>
<th>BIPOLAR signal input</th>
<th>MANUAL set (no input)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[0V/+...V] ADSR illustration</td>
<td>[-...V/+...V ] triangle LFO illustration</td>
<td>[CCW/CW] knob illustration</td>
</tr>
</tbody>
</table>

- **UNIPOLAR signal input**
  - [0V/+...V] ADSR illustration
  - Diagram showing a graph with labels: `+...V`, `0V`, `-...V`.

- **BIPOLAR signal input**
  - [-...V/+...V] triangle LFO illustration
  - Diagram showing a graph with labels: `+...V`, `0V`, `-...V`.

- **MANUAL set (no input)**
  - [CCW/CW] knob illustration
  - Diagram showing a graph with labels: `CW`, `noon`, `CCW`.

**XFADE DIR.**

- A → B
- B → A

**XFADE**

- A
- B

**1:1**

- A → B
- B → A

**CW**

- Noon
- CCW
Set the Korgasmatron in PARALLEL configuration. Use same LP-BP-HP-BR's switch position for A & B filters to set type of stereo filter.

2-pole low-pass stereo filter for this illustration.

- Set stereo filter type same position as filter B
- Filter A LEFT out
- Filter B RIGHT out

LEFT signal IN

RIGHT signal IN
State-variable stereo filter - VC pan patch

Requires 2 bipolar VCAs.

Set gain of VCA to +1 and VCA 2 to -1.

In this patch, a positive offset patched at VCA 1 CV in & VCA 2 CV in down the amplitude of RIGHT out, while up amplitude of LEFT out.

A negative offset patched at VCA 1 CV in & VCA 2 CV in up the amplitude of RIGHT out, while down amplitude of LEFT out.

Use same LP-BP-HP-BR's switch position for A & B filters to set type of stereo filter.

Low-pass stereo filter for this illustration.

LEFT signal

same position
as filter B

set stereo filter type

RIGHT signal

CV signal

same CV

IN

filter A out

bipolar VCA 1
in / gain +1

filter B out

bipolar VCA 2
in / gain -1

IN

OUT A

OUT B

OUT 1V/OCT

MIX

IN A

IN B

CUTOFF

CLIP

HARD

Q

FM1

FM2

FM1

FM2

FM2

FM1

HP1

LP1

BR1

LP2

LP2

LP1

BP1

Q-DRIVE

Q-DRIVE

A-B

B-A

A

B

XFADE

XFADE DIR.

VCF A

VCF B

VCF A

VCF B

XFADE

set stereo filter type

same position
as filter B
1-pole BAND-PASS filter patch

Monitoring band-pass filter at OUT B in SERIAL configuration.

**band-pass CUTOFF shift**: Manually set A & B cutoff, with A low-pass cutoff always > B high-pass cutoff. Keep same relative knobs positions for cutoff shift.


**Input**
- Same CV signal in A & B FM 1 with same attenuation levels.
- Use FM 2 normalled input and set FM 2 B as FM 2 A.
- Different CV signals in A & B FM 1 with different attenuation levels.
- Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See band-pass filter chart for details on OUT B filter curves.
# 1-pole BAND-PASS filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 1-pole FILTER cutoff</th>
<th>HP1 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SERIAL - B OUT</strong></td>
<td><img src="CUTOFF.png" alt="CUTOFF" /></td>
<td>![MODE B](MODE B.png)</td>
</tr>
<tr>
<td><strong>A - LOW-PASS 1-pole FILTER cutoff</strong></td>
<td><img src="CUTOFF.png" alt="CUTOFF" /></td>
<td></td>
</tr>
<tr>
<td><strong>LP1 MODE</strong></td>
<td>![filter BANDWIDTH](filter BANDWIDTH.png)</td>
<td>![filter CUTOFF SHIFT](filter CUTOFF SHIFT.png)</td>
</tr>
</tbody>
</table>
2-pole BAND-PASS filter patch

CUTOFF/BANDWIDTH set with A low-pass always > B high-pass

CV CUTOFF/BANDWIDTH

Monitoring band-pass filter at OUT B in SERIAL configuration.

band-pass CUTOFF shift:

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

band-pass BANDWIDTH set:
Manually set A & B cutoff, with A low-pass cutoff always > B high-pass cutoff. Keep different relative knobs positions for bandwidth set.

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See band-pass filter chart for details on OUT B filter curves.
## 2-pole BAND-PASS filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 2-pole FILTER cutoff</th>
<th>HP2 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL - B OUT</td>
<td><img src="image" alt="CUTOFF" /></td>
<td><img src="image" alt="MODE B" /></td>
</tr>
<tr>
<td>CLIP HARD</td>
<td><img src="image" alt="CUTOFF" /></td>
<td></td>
</tr>
<tr>
<td>LP2 MODE</td>
<td><img src="image" alt="BANDWIDTH" /></td>
<td><img src="image" alt="CUTOFF SHIFT" /></td>
</tr>
</tbody>
</table>
1-pole BAND-REJECT filter patch

Monitoring band-reject filter at MIX in PARALLEL configuration with 1:1 XFADE.

band-reject CUTOFF shift:

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

band-reject BANDWIDTH set:
Manually set A & B cutoff, with A low-pass cutoff always < B high-pass cutoff. Keep different relative knobs positions for bandwidth set.

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See band-reject filter chart for details on MIX out filter curves.
1-pole BAND-REJECT filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 1-pole FILTER cutoff</th>
<th>HP1 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARALLEL - 1:1 MIX OUT</td>
<td><img src="CUTOFF" alt="CUTOFF" /></td>
<td>![MODE B](MODE B)</td>
</tr>
<tr>
<td>A XFADE B</td>
<td><img src="CUTOFF" alt="CUTOFF" /></td>
<td>![LP1 LP2 HP2 BP1 BR1](LP1 LP2 HP2 BP1 BR1)</td>
</tr>
<tr>
<td>CLIP HARD CUTOFF</td>
<td>CLIP HARD CUTOFF</td>
<td>LP1 HP1 HP2 BP1 BR1</td>
</tr>
<tr>
<td>A LOW-PASS 1-pole FILTER cutoff</td>
<td>out</td>
<td>![filter BANDWIDTH](filter BANDWIDTH)</td>
</tr>
<tr>
<td>CLIP HARD CUTOFF</td>
<td>freq.</td>
<td>![filter CUTOFF SHIFT](filter CUTOFF SHIFT)</td>
</tr>
<tr>
<td>A</td>
<td>out</td>
<td>freq.</td>
</tr>
<tr>
<td>A</td>
<td>out</td>
<td>freq.</td>
</tr>
<tr>
<td>A</td>
<td>out</td>
<td>freq.</td>
</tr>
</tbody>
</table>

The diagram illustrates the filter curves for different modes and cutoffs, showing how the output changes in response to the adjustment of the filter cutoff and bandwidth. The PARALLEL - 1:1 MIX OUT and LOW-PASS 1-pole FILTER cutoff modes are highlighted, with the HP1 MODE being adjustable between MODE A and MODE B.
Monitoring band-reject filter at **MIX** in **PARALLEL** configuration with 1:1 **XFADE**.

**band-reject CUTOFF shift:**
Manually set A & B cutoff, with **A low-pass cutoff always < B high-pass cutoff**. Keep same relative knobs position for cutoff shift.

**OR/AND**
Input same CV signal in A & B FM 1 with same attenuation levels.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as FM 2 A.

**band-reject BANDWIDTH set:**
Manually set A & B cutoff, with **A low-pass cutoff always < B high-pass cutoff**. Keep different relative knobs positions for bandwidth set.

**OR/AND**
Input different CV signals in A & B FM 1 with different attenuation level.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See band-reject filter chart for details on MIX out filter curves.
<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 2-pole FILTER cutoff</th>
<th>HP2 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARALLEL - 1:1 MIX OUT</td>
<td></td>
<td>MODE B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A - LOW-PASS 2-pole FILTER cutoff</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>LP2 MODE</td>
<td>filter CUTOFF SHIFT</td>
</tr>
</tbody>
</table>

- **MIX**
  - PARALLEL - 1:1 MIX OUT
  - A - LOW-PASS 2-pole FILTER cutoff
  - LP2 MODE

- **B - HIGH-PASS 2-pole FILTER cutoff**
  - CLIP HARD
  - CUTOFF

- **HP2 MODE**
  - MODE B
  - LP1 HP1 HP2 BR1

- **Diagram**
  - Filter BANDWIDTH
  - Filter CUTOFF SHIFT
Asymmetrical BAND-PASS filter patch

Monitoring band-pass filter at OUT B in SERIAL configuration.

**band-pass CUTOFF shift:**

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalied input and set FM 2 B as FM 2 A.

**band-pass BANDWIDTH set:**
Manually set A & B cutoff, with A low-pass cutoff always > B high-pass cutoff. Keep different relative knobs positions for bandwidth set.

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalied input and set FM 2 B as inverted of FM 2 A.

See asymmetrical band-pass filter chart for details on OUT B filter curves.
## Asymmetrical BAND-PASS Filter Curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 2-pole FILTER Cutoff</th>
<th>HP2 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="MIX" /></td>
<td><img src="image2" alt="B - HIGH-PASS 2-pole FILTER Cutoff" /></td>
<td><img src="image3" alt="HP2 MODE" /></td>
</tr>
</tbody>
</table>

### MIX Modes

- **SERIAL - B OUT**
  - Clip Hard Cutoff

### B - HIGH-PASS 2-pole FILTER Cutoff

- **CLIP HARD CUTOFF**

### HP2 MODE

- **BP1 HP1 LP1 HP2 BR1 MODE B**

### FILTER CURVES

- **A LOW-PASS 1-pole FILTER cutoff**
  - Clip Hard Cutoff

- **LP1 MODE**
  - LP1 HP1 LP2 BR1 MODE A

---

**滤波带宽**

**滤波截止位移**
Asymmetrical BAND-REJECT filter patch

Monitoring band-reject filter at **MIX** in **PARALLEL** configuration with 1:1 **XFADE**.

**band-reject CUTOFF shift**:
Manually set A & B cutoff, with **A low-pass cutoff always < B high-pass cutoff**. Keep same relative knobs position for cutoff shift.

**OR/AND**
Input same CV signal in A & B FM 1 with same attenuation levels.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as FM 2 A.

**band-reject BANDWIDTH set**:
Manually set A & B cutoff, with **A low-pass cutoff always < B high-pass cutoff**. Keep different relative knobs positions for bandwidth set.

**OR/AND**
Input different CV signals in A & B FM 1 with different attenuation level.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See asymmetrical band-reject filter chart for details on **MIX out filter curves**.

---

**CUTOFF/BANDWIDTH**

- Set with **A low-pass always < B high-pass**

**CV CUTOFF/BANDWIDTH**

**CV CUTOFF/BANDWIDTH**

- Signal to be filtered
- Asymmetrical band-reject filter out
Asymmetrical BAND-REJECT filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 1-pole FILTER cutoff</th>
<th>HP1 MODE</th>
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<tbody>
<tr>
<td>PARALLEL - 1:1 MIX OUT</td>
<td><img src="image" alt="" /></td>
<td><img src="image" alt="" /></td>
</tr>
<tr>
<td>CLIP HARD</td>
<td>CUTOFF</td>
<td>CLIP HARD</td>
</tr>
<tr>
<td>LOW-PASS 2-pole FILTER cutoff</td>
<td><img src="image" alt="" /></td>
<td><img src="image" alt="" /></td>
</tr>
<tr>
<td>CLIP HARD</td>
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<tr>
<td>CLIP HARD</td>
<td>CUTOFF</td>
<td>CLIP HARD</td>
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</table>

filter BANDWIDTH

filter CUTOFF SHIFT
Dual BAND-PASS filter patch

Monitoring dual band-pass filter at MIX in PARALLEL configuration with 1:1 XFADE.

dual band-pass CUTOFF shift:

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

dual band-pass BANDWIDTH set:

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See dual band-pass filter chart for details on MIX out filter curves.
## Dual BAND-PASS filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - BAND-PASS 1-pole FILTER cutoff</th>
<th>BP1 MODE</th>
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<td>PARALLEL - 1:1 MIX OUT</td>
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<tr>
<td>A XFADE B</td>
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### A - BAND-PASS 1-pole FILTER cutoff

- **CLIP HARD**
- **CUTOFF**

### BP1 MODE

- **Mode A**
- **LP1**
- **HP1**
- **HP2**
- **LP2**
- **BR1**

Filter **BANDWIDTH**

Filter **CUTOFF SHIFT**
Monitoring band-pass filter at OUT B in SERIAL configuration.

dual band-reject CUTOFF shift:
OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.
OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

dual band-reject BANDWIDTH set:
Manually set A & B cutoff, with A band-reject cutoff always ≠ B band-reject cutoff. Keep different relative knobs positions for bandwidth set.
OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.
OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See dual band-reject filter chart for details on OUT B filter curves.
### Dual BAND-REJECT Filter Curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - BAND-REJECT 1-pole FILTER cutoff</th>
<th>BR1 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL - B OUT</td>
<td><img src="image1" alt="Filter Curves" /></td>
<td><img src="image2" alt="Filter Curves" /></td>
</tr>
<tr>
<td><img src="image3" alt="Filter Curves" /></td>
<td><img src="image4" alt="Filter Curves" /></td>
<td><img src="image5" alt="Filter Curves" /></td>
</tr>
</tbody>
</table>

#### BR1 Mode Options:
- **Mode A**: LP1, HP1, HP2, BR1
- **Mode B**: LP1, HP1, HP2, BR1

- Filter BANDWIDTH
- Filter CUTOFF SHIFT
Monitoring (BP1 + LP1) filter at MIX in PARALLEL configuration with 1:1 XFADE.

(BP1 + LP1) CUTOFF shift:

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

(BP1 + LP1) BANDWIDTH set:

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BP1 + LP1) filter chart for details on MIX out filter curves.
### (BP1 + LP1) filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - BAND-PASS 1-pole FILTER cutoff</th>
<th>BP1 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARALLEL - 1:1 MIX OUT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### A - LOW-PASS 1-pole FILTER cutoff

- CLIP HARD
- CUTOFF

#### B - BAND-PASS 1-pole FILTER cutoff

- CLIP HARD
- CUTOFF

#### LP1 MODE

- MODE A

- filter BANDWIDTH

- filter CUTOFF SHIFT

---

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Monitoring (BP1 + LP2) filter at MIX in PARALLEL configuration with 1:1 XFADE.

**(BP1 + LP2) CUTOFF shift:**
Manually set A & B cutoff, with **A low-pass cutoff always < B band-pass cutoff**. Keep same relative knobs position for cutoff shift.

**OR/AND**
Input same CV signal in A & B FM 1 with same attenuation levels.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as FM 2 A.

**(BP1 + LP2) BANDWIDTH set:**
Manually set A & B cutoff, with **A low-pass cutoff always < B band-pass cutoff**. Keep different relative knobs positions for bandwidth set.

**OR/AND**
Input different CV signals in A & B FM 1 with different attenuation levels.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BP1 + LP2) filter chart for details on MIX out filter curves.

**CV CUTOFF/BANDWIDTH**
- Set with **A low-pass always < B band-pass**

**Signal to be filtered**

**(BP1 + LP2) out**
(BP1 + LP2) filter curves

**MIX**

- PARALLEL - 1:1 MIX OUT
- A - LOW-PASS 2-pole FILTER cutoff
- B - BAND-PASS 1-pole FILTER cutoff

**BP1 MODE**

- MODE B

**LP2 MODE**

- MODE A

**Legend**

- Filter BANDWIDTH
- Filter CUTOFF SHIFT

- Out freq.
- Out freq.
- Out freq.
- Out freq.
- Out freq.
- Out freq.

- A
- B

- CLIP HARD
- CUT OFF

- XFADE

- BP1 HP1
- HP2
- BR1
Monitoring (BP1 + HP1) filter at **MIX** in **PARALLEL** configuration with 1:1 **XFADE**.

**BP1 + HP1** CUTOFF shift:
Manually set A & B cutoff, with **A band-pass cutoff always < B high-pass cutoff**. Keep same relative knobs position for cutoff shift.

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

**BP1 + HP1** BANDWIDTH set:
Manually set A & B cutoff, with **A band-pass cutoff always < B high-pass cutoff**. Keep different relative knobs positions for bandwidth set.

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BP1 + HP1) filter chart for details on MIX out filter curves.
# (BP1 + HP1) Filter Curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 1-pole FILTER cutoff</th>
<th>HP1 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARALLEL - 1:1 MIX OUT</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<tr>
<td>HP1 MODE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAND-PASS 1-pole FILTER cutoff</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A - BAND-PASS 1-pole FILTER cutoff</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP1 MODE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Filter Curves**

- **A** - Band-pass 1-pole filter cutoff
- **B** - High-pass 1-pole filter cutoff

**Legend**

- **CUTOFF**
- **CLIP HARD**
- **OUT FREQ.**
- **LP1**, **LP2**, **HP1**, **HP2**, **BR1**
- **MODE A**, **MODE B**

**Bandwidth and Cutoff Shift**

- Filter bandwidth
- Filter cutoff shift
CUTOFF/BANDWIDTH set with A band-pass always < B high-pass

CV CUTOFF/BANDWIDTH

CV CUTOFF/BANDWIDTH

signal to be filtered

(BP1 + HP1) out

(BP1 + HP2) filter patch

Monitoring (BP1 + HP2) filter at MIX in PARALLEL configuration with 1:1 XFADE.

(BP1 + HP2) CUTOFF shift:
Manually set A & B cutoff, with A band-pass cutoff always < B high-pass cutoff. Keep same relative knobs position for cutoff shift.

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

(BP1 + HP2) BANDWIDTH set:
Manually set A & B cutoff, with A band-pass cutoff always < B high-pass cutoff. Keep different relative knobs positions for bandwidth set.

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BP1 + HP2) filter chart for details on MIX out filter curves.
## (BP1 + HP2) filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - HIGH-PASS 1-pole FILTER cutoff</th>
<th>HP2 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARALLEL - 1:1 MIX OUT</td>
<td><img src="image1" alt="Filter curves" /></td>
<td><img src="image2" alt="Filter curves" /></td>
</tr>
<tr>
<td>A</td>
<td><img src="image3" alt="Filter curves" /></td>
<td><img src="image4" alt="Filter curves" /></td>
</tr>
<tr>
<td>CLIP HARD</td>
<td><img src="image5" alt="Filter curves" /></td>
<td><img src="image6" alt="Filter curves" /></td>
</tr>
<tr>
<td>CUTOFF</td>
<td><img src="image7" alt="Filter curves" /></td>
<td><img src="image8" alt="Filter curves" /></td>
</tr>
<tr>
<td>A</td>
<td><img src="image9" alt="Filter curves" /></td>
<td><img src="image10" alt="Filter curves" /></td>
</tr>
<tr>
<td>CLIP HARD</td>
<td><img src="image11" alt="Filter curves" /></td>
<td><img src="image12" alt="Filter curves" /></td>
</tr>
<tr>
<td>CUTOFF</td>
<td><img src="image13" alt="Filter curves" /></td>
<td><img src="image14" alt="Filter curves" /></td>
</tr>
<tr>
<td>A</td>
<td><img src="image15" alt="Filter curves" /></td>
<td><img src="image16" alt="Filter curves" /></td>
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<tr>
<td>CLIP HARD</td>
<td><img src="image17" alt="Filter curves" /></td>
<td><img src="image18" alt="Filter curves" /></td>
</tr>
<tr>
<td>CUTOFF</td>
<td><img src="image19" alt="Filter curves" /></td>
<td><img src="image20" alt="Filter curves" /></td>
</tr>
<tr>
<td>B</td>
<td><img src="image21" alt="Filter curves" /></td>
<td><img src="image22" alt="Filter curves" /></td>
</tr>
<tr>
<td>CLIP HARD</td>
<td><img src="image23" alt="Filter curves" /></td>
<td><img src="image24" alt="Filter curves" /></td>
</tr>
<tr>
<td>CUTOFF</td>
<td><img src="image25" alt="Filter curves" /></td>
<td><img src="image26" alt="Filter curves" /></td>
</tr>
</tbody>
</table>

**BP1 MODE**
- **MODE A**
- **filter BANDWIDTH**
- **filter CUTOFF SHIFT**

**HP2 MODE**
- **MODE B**
Monitoring (BR1 + LP1) filter at OUT B in SERIAL configuration.

(BR1 + LP1) CUTOFF shift:

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

(BR1 + LP1) BANDWIDTH set:

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BR1 + LP1) filter chart for details on OUT B filter curves.
(BR1 + LP1) filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - LOW-PASS 1-pole FILTER cutoff</th>
<th>LP1 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL - B OUT</td>
<td><img src="image1" alt="CUTOFF filter curves" /></td>
<td><img src="image2" alt="LP1 MODE" /></td>
</tr>
<tr>
<td><img src="image3" alt="CLIP HARD CUTOFF filter curves" /></td>
<td><img src="image4" alt="CUTOFF filter curves" /></td>
<td><img src="image5" alt="MIX" /></td>
</tr>
<tr>
<td>A-BAND-REJECT 1-pole FILTER cutoff</td>
<td><img src="image6" alt="CUTOFF filter curves" /></td>
<td><img src="image7" alt="LP1 MODE" /></td>
</tr>
<tr>
<td><img src="image8" alt="CLIP HARD CUTOFF filter curves" /></td>
<td><img src="image9" alt="CUTOFF filter curves" /></td>
<td><img src="image10" alt="LP1 MODE" /></td>
</tr>
<tr>
<td><img src="image11" alt="CLIP HARD CUTOFF filter curves" /></td>
<td><img src="image12" alt="CUTOFF filter curves" /></td>
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<td><img src="image14" alt="CLIP HARD CUTOFF filter curves" /></td>
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<td><img src="image17" alt="CLIP HARD CUTOFF filter curves" /></td>
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<td><img src="image20" alt="CLIP HARD CUTOFF filter curves" /></td>
<td><img src="image21" alt="CUTOFF filter curves" /></td>
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<td><img src="image23" alt="CLIP HARD CUTOFF filter curves" /></td>
<td><img src="image24" alt="CUTOFF filter curves" /></td>
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<tr>
<td><img src="image26" alt="CLIP HARD CUTOFF filter curves" /></td>
<td><img src="image27" alt="CUTOFF filter curves" /></td>
<td><img src="image28" alt="LP1 MODE" /></td>
</tr>
</tbody>
</table>

- filter BANDWIDTH
- filter CUTOFF SHIFT
Monitoring (BR1 + LP2) filter at OUT B in SERIAL configuration.

(BR1 + LP2) CUTOFF shift:

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

(BR1 + LP2) BANDWIDTH set:

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BR1 + LP2) filter chart for details on OUT B filter curves.
## BR1 + LP2) filter curves

<table>
<thead>
<tr>
<th>MIX</th>
<th>B - LOW-PASS 2-pole FILTER cutoff</th>
<th>LP2 MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL - B OUT</td>
<td><img src="image1.png" alt="Image" /></td>
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<td><img src="image3.png" alt="Image" /></td>
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<td><img src="image5.png" alt="Image" /></td>
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<td>A - BAND-REJECT 1-pole FILTER cutoff</td>
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<td><img src="image7.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image8.png" alt="Image" /></td>
<td><img src="image9.png" alt="Image" /></td>
<td><img src="image10.png" alt="Image" /></td>
</tr>
<tr>
<td>BR1 MODE</td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image13.png" alt="Image" /></td>
<td><img src="image14.png" alt="Image" /></td>
<td><img src="image15.png" alt="Image" /></td>
</tr>
</tbody>
</table>

- **Filter Bandwidth**
- **Filter Cutoff Shift**

![Image](image16.png)
Monitoring (BR1 + HP1) filter at OUT B in SERIAL configuration.

(BR1 + HP1) CUTOFF shift:
Manually set A & B cutoff, with A high-pass cutoff always < B band-reject cutoff. Keep same relative knobs position for cutoff shift.

OR/AND
Input same CV signal in A & B FM 1 with same attenuation levels.

OR/AND
Use FM 2 normalled input and set FM 2 B as FM 2 A.

(BR1 + HP1) BANDWIDTH set:
Manually set A & B cutoff, with A high-pass cutoff always < B band-reject cutoff. Keep different relative knobs positions for bandwidth set.

OR/AND
Input different CV signals in A & B FM 1 with different attenuation level.

OR/AND
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BR1 + HP1) filter chart for details on OUT B filter curves.
(BR1 + HP1) filter curves

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<th>MIX</th>
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<th>BR1 MODE</th>
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<td>SERIAL - B OUT</td>
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</tbody>
</table>

**A - HIGH-PASS 1-pole FILTER cutoff**

**B - BAND-REJECT 1-pole FILTER cutoff**

**BR1 MODE**
Monitoring (BR1 + HP2) filter at OUT B in SERIAL configuration.

**(BR1 + HP2) CUTOFF shift:**
Manually set A & B cutoff, with A high-pass cutoff always < B band-reject cutoff. Keep same relative knobs position for cutoff shift.

**OR/AND**
Input same CV signal in A & B FM 1 with same attenuation levels.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as FM 2 A.

**(BR1 + HP2) BANDWIDTH set:**
Manually set A & B cutoff, with A high-pass cutoff always < B band-reject cutoff. Keep different relative knobs positions for bandwidth set.

**OR/AND**
Input different CV signals in A & B FM 1 with different attenuation level.

**OR/AND**
Use FM 2 normalled input and set FM 2 B as inverted of FM 2 A.

See (BR1 + HP2) filter chart for details on OUT B filter curves.
(BR1 + HP2) filter curves

<table>
<thead>
<tr>
<th>MIX</th>
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</tr>
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<tbody>
<tr>
<td>SERIAL - B OUT</td>
<td>CUTOFF</td>
<td>MODE B</td>
</tr>
<tr>
<td>A - VCF A</td>
<td>B - CLIP HARD</td>
<td></td>
</tr>
<tr>
<td>VCF B</td>
<td>CUTOFF</td>
<td></td>
</tr>
</tbody>
</table>

| A - CLIP HARD        | CUTOFF                               |          |
| CUTOFF               |                                      |          |

| A - HIGH-PASS 2-pole FILTER cutoff | CUTOFF |          |
| CUTOFF                    |        |          |

| HP2 MODE               |        | filter BANDWIDTH |
|                         |        | filter CUTOFF SHIFT |

| HP2 MODE               |        | filter BANDWIDTH |
|                         |        | filter CUTOFF SHIFT |
Heavy dub bass

- Set bass frequency
- Make filter A self-oscillate
- Set past 12 o'clock for heavy bass
- Filter A bass out
- Bassline CV
- Set bass frequency
- Make filter A self-oscillate
- Set past 12 o'clock for heavy bass
- Filter A bass out
- Bassline CV
Ping!

**set ping frequency**

**set just under filter A self-oscillation**

**filter A ping out**

**short A/D or trigger in A**
Weird filter

Advice: If you are using the Korgasmatron II in SERIAL configuration inserting a plug into IN B jack will break the internal routing from filter A which may cause confusion.
set filter A coarse frequency

make filter A self-oscillate

XFADE input attenuator

sub-audio bipolar XFADE signal input

1V/Oct quantized CV

spacewave sound out

set filter B coarse frequency slightly detuned with filter A

make filter B self-oscillate
Feedback loop

Monitoring MIX output in SERIAL configuration.

make filter A self-oscillate

feedback loop out
Cross-FM

Monitoring MIX output in PARALLEL configuration.

- Make filter A self-oscillate
- Make filter B self-oscillate

Cross-FM out

[Diagram of Cross-FM module with controls labeled and arrows indicating connections and actions]
Feedback cross-FM

- Make filter A self-oscillate
- Make filter B self-oscillate

Monitoring MIX output in SERIAL configuration.

Feedback cross-FM out
Monitoring OUT B or MIX output in SERIAL configuration.

Set filter B FM2 opposite to filter A FM2.

Experiment with different cutoff, Q and Q-DRIVE values for both filters.

slow bipolar FM2 signal input

triangle in

serial MIX out

drone zone out

OUT B for +V FM2 input CV:

OUT B for -V FM2 input CV:
Expander - Overview

- **set AUX MOD A**
- **AUX IN A level**
- **Q CV A level**
- **set AUX MOD B**
- **AUX IN B level**
- **Q CV B level**
A signal in AUX A signal in (AUX A + A) out

AUX IN A level

AUX IN B level

AUX A signal in

AUX B signal in

(AUX B + B) out

(AUX A + A) : (AUX B + B) out

B signal in

A signal in

out
Expander - Quad filter feedback loop

Monitoring MIX output in SERIAL configuration.

AUX IN A level

AUX IN B level

make filter A self-oscillate

feedback loop out
Expander - Cross-Q modulation

Q CV A level

Q CV B level

Monitoring MIX output in PARALLEL configuration.

make filters A & B self-oscillate

cross-Q out
Expander - Drone zone 2

Monitoring OUT B or MIX output in SERIAL configuration.

Set filter B FM2 opposite to filter A FM2. Experiment with different cutoff, Q and Q-DRIVE values for both filters.

- AUX IN A level
- AUX IN B level

AUX MODE A

AUX MODE B

AUX IN A

AUX IN B

Q CV A

Q CV B

OUT A

OUT B

XFADE

XFADE DIR.

SERIAL

MIX

OUT B

B OUT:

freq.

B OUT for +V FM2 input CV:

freq.

B OUT for -V FM2 input CV:

freq.

triangle in

slow bipolar FM2 signal input

serial MIX out

drone zone out