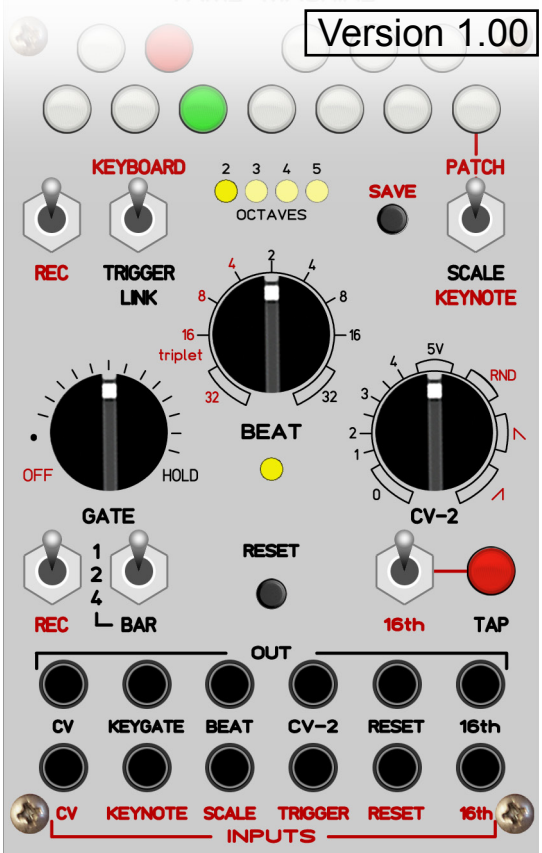
FLAME

TAME MACHINE

Version 1.00



MANUAL

Contents

1. SHORT DESCRIPTION

QUANTIZER SECTION

The module is a combination of quantizer and beat looper. A quantizer converts a continous voltage (on CV-input) in the range of 0...+5V into a stepped output voltage in the same voltage range. The scale assigns the possible voltage states.

The quantizer can be triggered per external trigger input or per link of the pulse from the beat section.
The module has 5 banks with each 7 patches for scales: Bank 1-4 with 28 fixed preset scales and bank 5 with 7 patches for individual user scales.
The keynote transposes the active scale.
Keynote and scale can be set by external CV inputs (keynote, scale) or manually per keyboard buttons. The playing of keynotes is recordable over max. 4 measures.

The keyboard buttons can be used like a mini keyboard (jack keygate=gate out, jack CV out=notes, octave setting with CV-2 ruler) .
The CV inputs and outputs have moog characteristic (1v/oct.).

BEAT SECTION

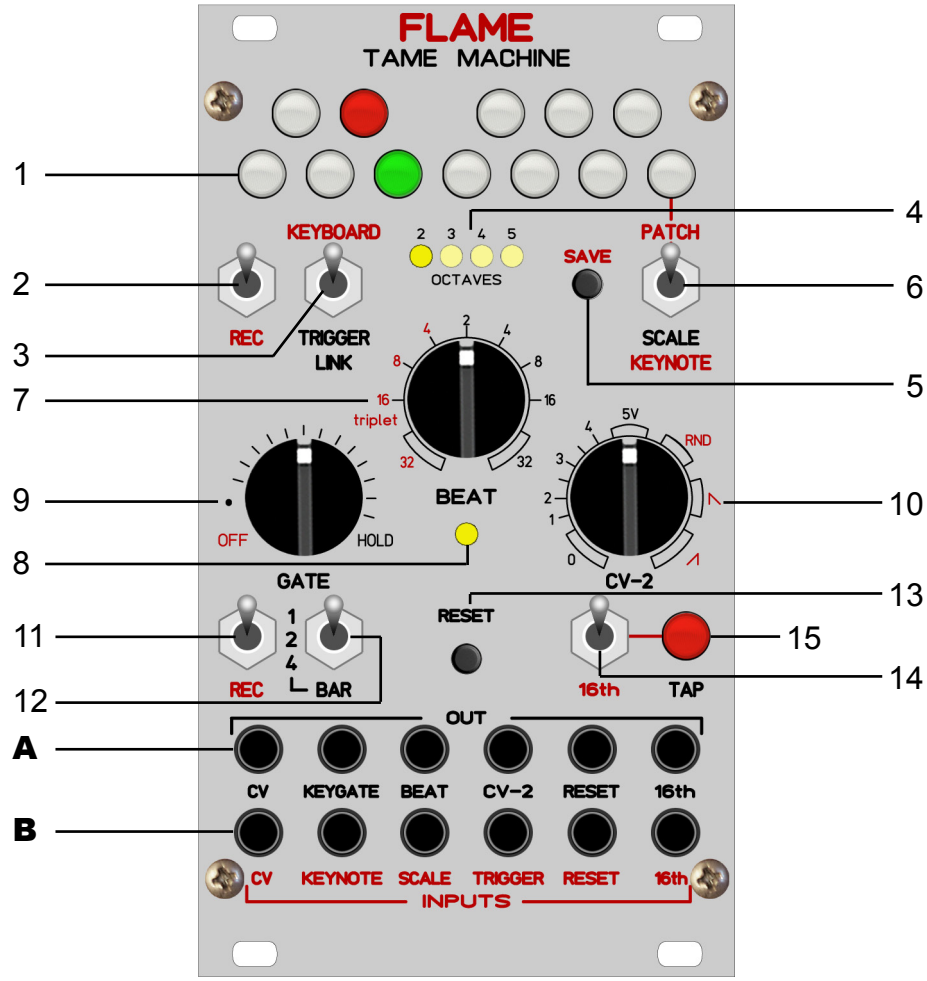
The second section can create individual beat patterns and can record over max. 4 measures. The GATE ruler assigns the gate length of the beat output pulse (off, gate, hold) and the BEAT ruler assigns the rythm of the beat output pulse.
Also the beat section generates the CV-2 output with following settings:

- variable voltage between 0..+5 volt
- Random between +1..+2 volt
- LFO down or up 0..+5 volt (fixed time interval over 1 measure).

The Tap-tempo generates the internal tempo (two times 4th-tap) or external per 16th clock. A Reset input/push button sets the beat on bar 1 back and marks the Reset output.
A short reset impulse is generated additionally with every beginning of a bar (with 16th length).

2. FIRST STEPS/HARDWARE

2.1 Modul overview



1 Keyboard
2 Switch RECORD note/keynote
3 Switch mode
4 Octaves indication
5 Key SAVE
6 Switch Patch/Scale/Keynote
7 Ruler BEAT
8 LED BEAT
9 Ruler GATE
10 Ruler CV-2
11 Switch RECORD Beat/CV-2
12 Mode switch BAR
13 Key button RESET BAR
14 Switch Tempo Tap/ext.Clock
15 TAP push-button

A Outputs (top row from left):
- CV (CV-Quantizer)
- Keygate (Gate of keyboard)
- Beat (Pulses of beat section)
- CV-2 (Voltage of CV-2 ruler)
- Reset (Reset pulse)
- 16th (16th clock pulses)

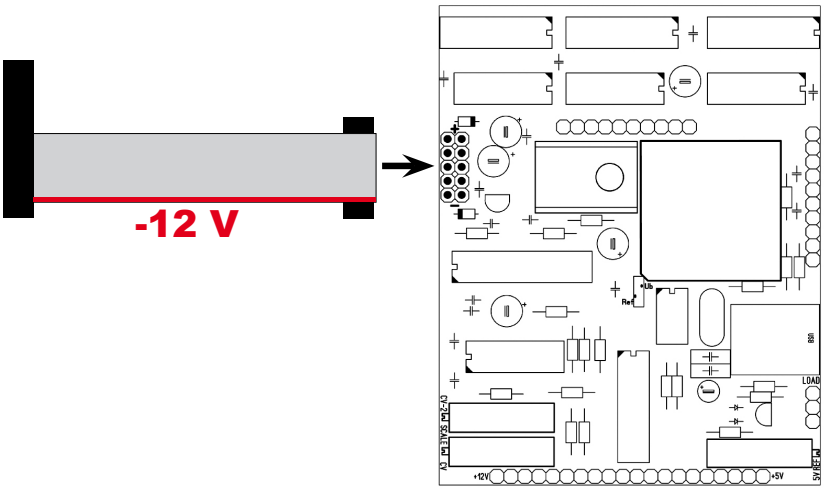
B Inputs (bottom row from left):
- CV (CV-Quantizer)
- Keynote (external CV keynote)
- Scale (external CV scale)
- Trigger (external trigger input quantizer)
- Reset (external reset input)
- 16th (externer Sync-Clockeingang)

2.2 Connection to the modular system (Doepfer bus)

The module is delivered with a connected ribbon cable for the Doepfer bus. The red lead marks -12 volt. Connecting the module please note the right polarity!

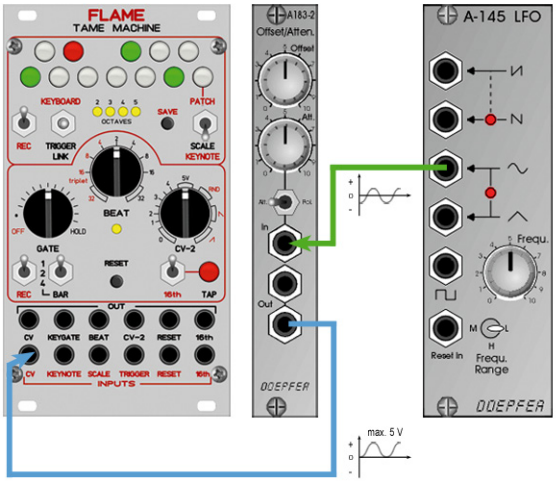
If the module is poled accidentally wrong safety diodes avoid the immediate destruction of the module but further damages cannot be excepted.

So please pay attention: Check the connection various times before switching on!



Advice to the tolerance of voltage at the inputs:
Please pay attention to the specification of the module (see technical details).
The module does not work precisely with voltages outside the specifications.

Especially negative voltages (below -0,5 volt) and positive voltages above +6,5v should be avoided. In case of doubt you should connect an attenuator or an offsetgenerator in front of the respective input (e.g. Doepfer module A183-1, A183-2, Fonitronik mh01).



3. KEYBOARD

If mode switch 3 is in position KEYBOARD then the keyboard buttons can be used like a mini keyboard (the note output is the CV output).
If a key is pressed then the KEYGATE output goes on (high level). If a key is released then the KEYGATE output goes off (low level).
The octave of the note can be set with the CV-2 ruler between position 1..5, displayed by the octaves LEDs.
The playing of the notes can be recorded and looped up to 4-measured.
More to this see sectionl 5.6 „Record and loop functions“.

Please note: The KEYGATE output is only available in mode KEYBOARD, not in the modes TRIGGER and LINK.

4. QUANTIZER

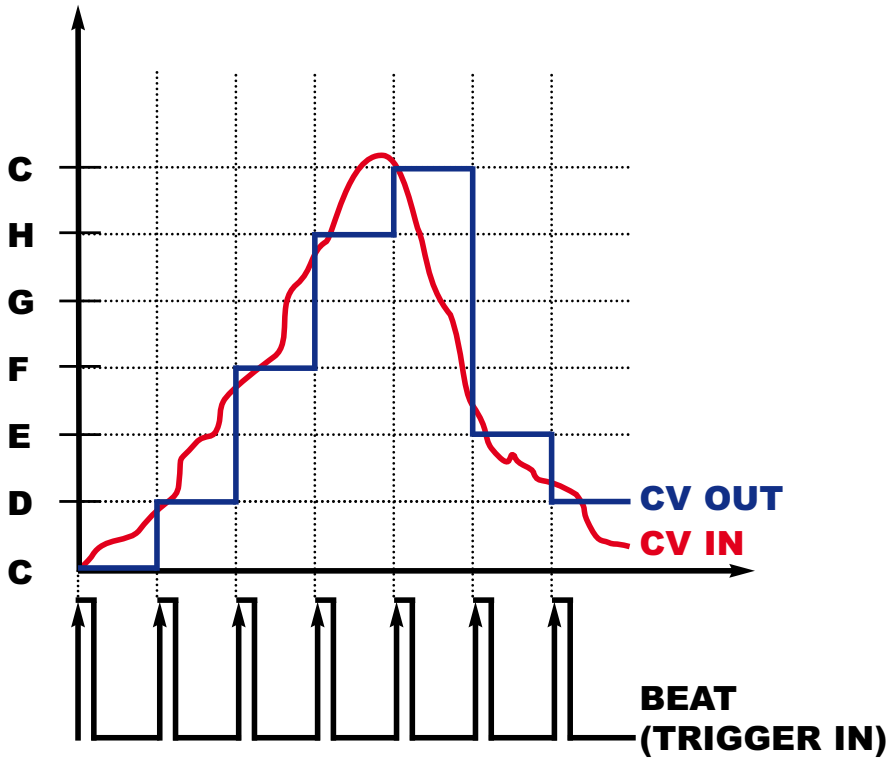
4.1 Input/output

The quantizer converts a continous voltage (on CV-input) in the range of 0...+5v into a stepped output voltage in the range of 0...+4,8V .

4.2 Trigger/link

If mode switch 3 is in position „trigger“ the activation of the quantisation happens per positive flank 0/5 volt at the trigger input.

If mode switch 3 is in position „Link“ the activation of the quantisation happens per internal BEAT pulse.



example C-major scale

4.3 Scale

You access a stored scale manually this way:
Set switch 6 at position PATCH (switch 3 at TRIGGER or LINK).
- set the bank in the upper key row (red color)
  (#C, #D, #F, #G=preset bank 1-4, #A=user bank 5)
- set the patches of banks (1-7) in the lower key row (green colour)

You access a stored scale automatically per external CV this way:
In any order of switch 6:
- voltage changes on the jack SCALE
  in the range of +1..+3,84Volt (C1...#A3)

Advice: Please make sure that you keep the necessary voltage range at the CV input of the quantizer (max. -0,5 volt to +6,5 volt) !

You adjust the individual scale this way:
Put switch 6 at SCALE (switch mode 3 is at TRIGGER or LINK).
Now you can put the tones at the keyboard which are arranged at the scale.

You can record the scale this way:
In position SCALE of switch 6 (switch 3 at TRIGGER or LINK):
1. please push the button SAVE
2. select the memory place (patch 1..7) in the lower key row
(User bank 5 ist automatically aktiv)
3. push the button SAVE again for storage permanently

4.4 Keynote

The setting of the keynote transposes the adjusted scale. In position SCALE of switch 6 the keynote is indicated red and the according transposed tones of the scale are indicated green.

You set the keynote manually this way:
Set switch 6 at position KEYNOTE (switch 3 at TRIGGER or LINK).
- please set the keynote with the keyboard buttons (the keynote is indicated red and the transposed scale green)

You set the keynote automatically per external clock this way:
In any order of switch 6.
- voltage change on the jack KEYNOTE in the range of +1..+1,92 volt (C1...B1)
Advice: Please make sure that you keep the necessary voltage range at the CV input of the quantizer (max. -0.5 to + 6,5 volt)

Please note: The keynotes cannot be stored!

5. BEAT LOOPER

5.1 General information

The beat looper generates a pulse sequence with adjustable GATE length and beat raster. The tempo is determined internally per TAP or externally per 16th pulse sequence. The performed beat raster can be recorded or looped up to 4 measures (see chapter 6).

5.2 Tempo/Synchronisation

If the Tap switch 15 is in upper position the sequence runs with internal tempo.

Set the TAP switch in position top: The sequence runs with a tempo determined per Tap tempo key. Please tap two times 4th for changing the tempo. The Tap-LED blinks in 4th beat.

If the Tap switch 15 is in lower position „16th“ the sequence runs with external tempo.

Set the TAP switch in position 16th: The sequence runs with a tempo, generated from the 16th clock (Tap-LED blinks in 16th beat).

Please note: In external sync the 32ths are not at your disposal!

If you switch between internal and external tempo while running operation, the tempi nevertheless get conserved.

5.3 Gate

The GATE ruler sets the gate length of the beat out pulse:
OFF: the beat out is permanently low
HOLD: the beat out is permanently high
In middle position the gate length is about half of the beat pulse.

The performed gate can be recorded or looped over 4 measures (see chapter 6).

5.4 Beat

The BEAT ruler sets the rythm of the pulse: on left side triplets and on right side duplets. The pulses are not generated with the divider but with the multiplier.

Please note: In external sync the 32ths are not to your disposal!

5.5 Reset

A Reset sets the beat pattern on ONE of measure 1 and also sets the reset output to high. A Reset can be released manually per RESET key or externally per high impuls on RESET input. The module generates automatically a reset pulse on measure 1 (pulse lenght=16th).

The reset imulse is necessary than if the sequence should synchronised on ONE.

5.6 CV-2/Random/LFO

Switch 3 in position TRIGGER or LINK:

With the CV-2 controller you adjust the output voltage at the CV-2 output:
You can generate fixed or variable values.

Different values are possible at following positions:

0..5: a fixed voltage between 0 and +5 volt
RND: a random voltage between +1 and +2 volt (1 octave)
down: LFO down 0 and +5v (fixed time interval over 1 measure)
up: LFO up 0 and +5v (fixed time interval over 1 measure)

Switch 3 in position KEYBOARD:

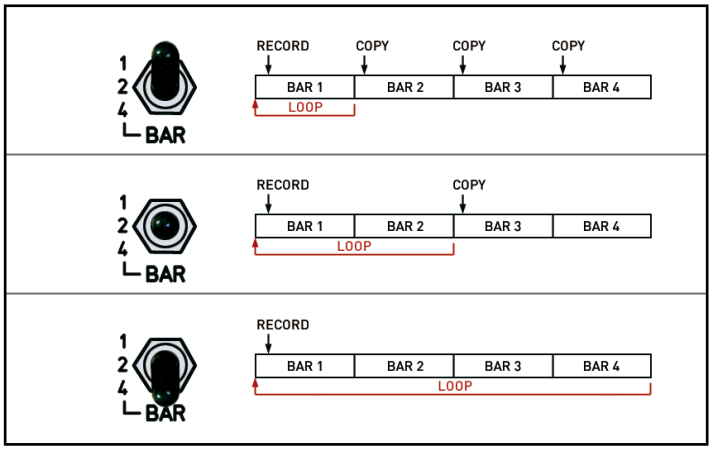
With the CV-2 controller you adjust the octave of the keyboard (see chapter3)

6. Record and loop functions

RECORD: Record in REC switch position on top and playing of the parameters in switch position at bottom.

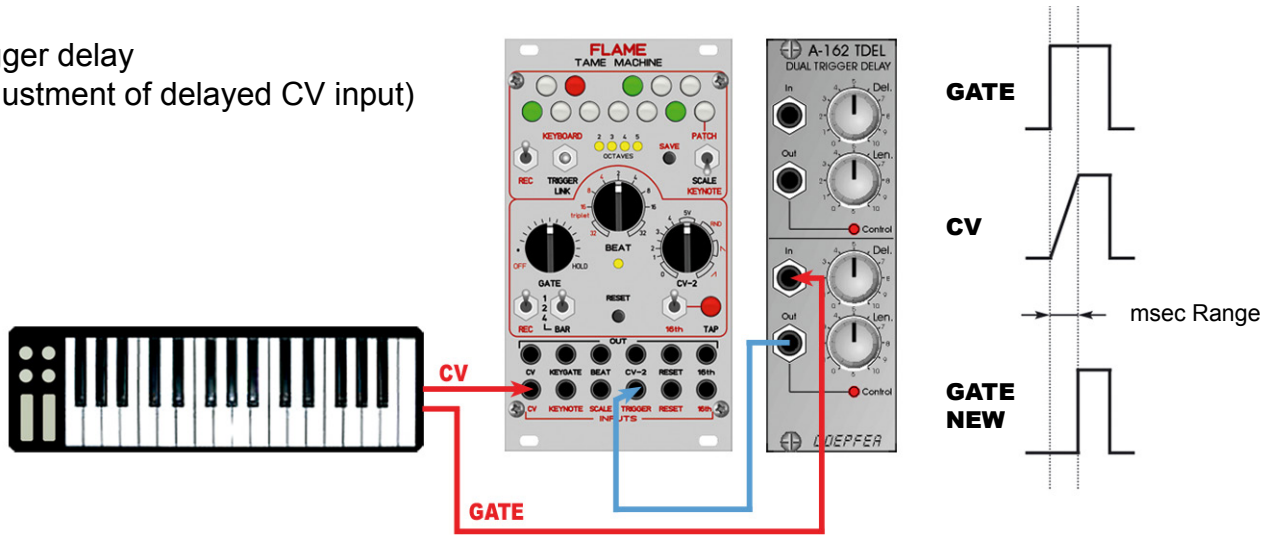
LIST OF RECORDED PARAMETERS OF THE REC SWITCHES:
Rec switch 2 (switch 3 is in position KEYBOARD):
- Keynotes of the Keyboard and the moves of CV-2 ruler between 1..5 (= the octaves of keyboard notes)
Rec switch 2 (switch 3 is in position TRIGGER or LINK):
- Keynotes of scale
Please note: Both keynotes (from keyboard and scale) have the same value!
Rec switch 11:
- the motions of the three knobs (Gate, Beat, CV-2)

LOOP (automtical copy of measures):
Recording steps with different lenght of the loop. To arrange LOOPS faster, at position 1 or 2 the according steps of the not played measures are recorded too.
That means: if BAR is at 1 all other measures are recorded with the same played steps. So the sequence goes on looping, even if you switch to BAR 4 (because all measures are the same). Because of this, you can play the measures only separately when BAR=4.
If BAR is=2, the sceme is always 2-measured and recorded are always 1 and 3 at the same time, as well as 2 and 4.

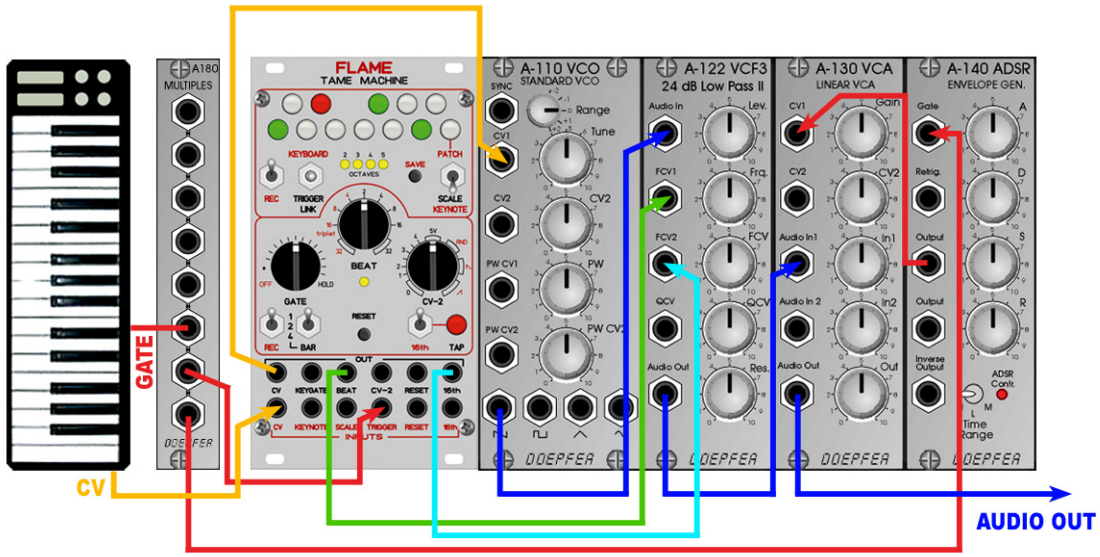


7. PATCH EXAMPLES

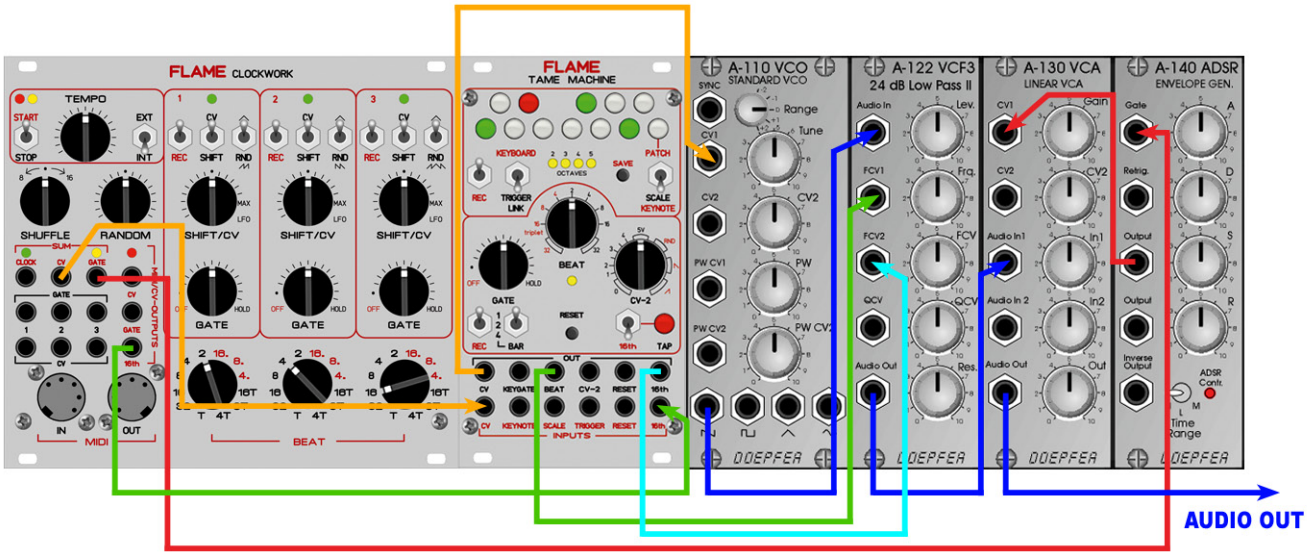
Trigger delay
(adjustment of delayed CV input)



Manually playable pulsative low-pass-filter (inclusive note quantizing)



Quantizing of CV-sequences (inclusive pulsative low-pass-filter)



8. APPENDIX AND TECHNICAL INFORMATIONS

8.1 Technical details

Inputs:	CV	0..+4,8v
	CV-KEYNOTE	1..+1,92v
	CV-SCALE	1..+3,84v
	TRIGGER	0/+5v
	RESET	0/+5v
	16th	0/+5v
Outputs:	CV	0..+5v (1volt/octave)
	CV-2	0..+5v
	KEYGATE	+0,3/+10v
	BEAT	+0,3/+10v
	RESET	+0,3/+10v
	16th	+0,3/+10v
Size:	3HU, 14HP	128,5mm x 70,8mm
Current consumption:	max.180mA (+12v)	
	max. 10mA (-12v)	

8.2 List of external CV keynote

Keynote	Voltage (KEYNOTE-In)	Note (KEYNOTE-In)
C	1,000 Volt	C1
#C	1,083 Volt	#C1
D	1,166 Volt	D1
#D	1,250 Volt	#D1
E	1,333 Volt	E1
F	1,416 Volt	F1
#F	1,500 Volt	#F1
G	1,583 Volt	G1
#G	1,666 Volt	#G1
A	1,750 Volt	A1
#A	1,833 Volt	#A1
B	1,916 Volt	B1

*moog characteristic: 1Volt / octaves

8.3 List of external CV scale

Bank/Patch	Name	Scale	Voltage (Scale-Input)	Notes (Scale-Input)
1-1	Major Scale	1,2,3,4,5,6,7	1,000 Volt	C1
1-2	Major Chord	1,3,5	1,083 Volt	#C1
1-3	Major 6 Chord	1,3,5,6	1,166 Volt	D1
1-4	Major 7 Chord	1,3,5,7	1,250 Volt	#D1
1-5	Major 7b5 Chord	1,3,b5,7	1,333 Volt	E1
1-6	Fourths	1,4,b7	1,416 Volt	F1
1-7	Major Blues	1,b3,3,5,6,b7	1,500 Volt	#F1
2-1	Minor harmonic	1,2,b3,4,5,b6,7	1,583 Volt	G1
2-2	Minor clean	1,2,b3,4,5,b6,b7	1,666 Volt	#G1
2-3	Minor chord	1,b3,5	1,750 Volt	A1
2-4	Minor 6 chord	1,b3,5,6	1,833 Volt	#A1
2-5	Minor 7 chord	1,b3,5,b7	1,916 Volt	B1
2-6	Minor 7b5 chord	1,b3,b5,b7	2,000 Volt	C2
2-7	Minor Blues	1,b3,4,#4,5,b7	2,083 Volt	#C2
3-1	Dorian	1,2,b3,4,5,6,b7	2,166 Volt	D2
3-2	Phrygian	1,b2,b3,4,5,b6,b7	2,250 Volt	#D2
3-3	Lydian	1,2,3,#4,5,6,7	2,333 Volt	E2
3-4	Diminished	1,2,b3,4,b5,b6,6,7	2,416 Volt	F2

Bank/Patch	Name	Scale	Voltage (Scale-Input)	Notes (Scale-Input)
3-5	Mixolydian	1,2,3,4,5,6,b7	2,500 Volt	#F2
3-6	Wholetone	1,3,#4,#5,b7	2,583 Volt	G2
3-7	Pentatonik	1,2,4,5,b7	2,666 Volt	#G2
4-1	Spanish	1,b2,3,4,5,b6,b7	2,750 Volt	A2
4-2	Algerian	1,2,b3,4,#4,5,b6,7	2,833 Volt	#A2
4-3	Balinesian	1,b2,b3,5,b6	2,916 Volt	B2
4-4	Byzantine	1,b2,3,4,5,b6,7	3,000 Volt	C3
4-5	Hindu	1,2,3,4,5,b6,b7	3,083 Volt	#C3
4-6	Nine tone	1,2,#2,3,#4,5,#5,6,7	3,166 Volt	D3
4-7	Octatonic	1,b2,b3,3,b5,5,6,b7	3,250 Volt	#D3
5-1	User Patch 1	initialized chromatic	3,333 Volt	E3
5-2	User Patch 2	initialized chromatic	3,416 Volt	F3
5-3	User Patch 3	initialized chromatic	3,500 Volt	#F3
5-4	User Patch 4	initialized chromatic	3,583 Volt	G3
5-5	User Patch 5	initialized chromatic	3,666 Volt	#G3
5-6	User Patch 6	initialized chromatic	3,750 Volt	A3
5-7	User Patch 7	initialized chromatic	3,833 Volt	#A3

8.4 Reset to factory settings

You can reset the factory settings the following way:

While switching on the module please hold the keyboard switches C and B pressed as long as the red keyboard switch F starts gleaming red.
Then let loose the switches. Now the internal memories will be reset.
This procedure is necessary e.g. after making an update of the firmware.
Advice: This operation transcribes the user scales!

8.5 Firmware update via USB

By means of software FLIP by ATMEL it is possible to make a firmware update.

A detailed description you can find in PDF document „firmware update per USB“ at website:
http://flame.fortschritt-musik.de

9. ADDITIONAL INFORMATIONS

9.1 Warrenty

Beginning from the date of purchase a 2-year warranty is guaranteed for this device in case of any manufacturing errors or other functional deficiencies during runtime.The warranty does not apply in case of:
- damage caused by misuse
- mechanical damage arising from careless treatment
(dropping, vigorous shaking, mishandling, etc)
- damage caused by liquids penetrating the device
- heat damage caused by overexposure to sunlight or heating
- electric damage caused by improper connecting
(wrong power supply/ jacks/ MIDI connections/ voltage problems).
If you have any complaints please contact your dealer or send an e-mail to:
service@flame.fortschritt-musik.de

9.2 Terms of production

conformity: CE, RoHS, UL

9.3 Disposal

The device is produced with RoHS-conformity (subject to the regulations of the European Union) and is free of hazardous substances (like mercury, plumb, cadmium and hexavalent chrome). But electronical scrap is hazardous waste. Please don’t add this to consumer waste. For an environment friendly disposal of waste please contact your distributor or specialist dealer.

9.4 Support

Updated and additional informations, updates, downloads and more see:
http://flame.fortschritt-musik.de

9.5 Acknowledgment

For help and assistance big thanks to: Schneiders Büro Berlin, Shawn Cleary (Analogue haven, Los Angeles), Thomas Wagner, Robert Junge, Anne-Kathrin Metzler, Chris Dreier and Lena Bünger.