FLAME
CLOCKWORK

- Individual generator for experimental grooves
- Easy soundmachine on your analog filter
- Create new patterns with analog stepsequencer
- Tool for modularsystems and analogsynth

TECHNICAL DETAILS

- Analog clock + CV-outputs
- 3 Tracks with Beat-, Gate-, Shift / CV-control
- Beats included triplet and punctuated notes
- Clock shift forward and backward
- LFO (synchronized), 4 waveforms:
  saw, up, down, up-saw-down
- Shuffle control (8 or 16th parts)
- Integrated MIDI to CV interface
  (5 Octaves, 1V/Oct)
- MIDI sync (intern/extern tempo via MIDI clock)
- Complex random functions
- Record functions
- MIDI controller
- Outputs 3,5mm (1/8th inch) mono jacks:
  Gate or CV + Sum, Clock/Gate, Midi-CV/Gate
- Output 3,5mm (1/8th inch) stereo jack: Sum Clock+Gate
- CV voltage: 0..+2V
- Clock voltage: 0 /+5V
- MIDI input / output
- 12..14VAC input
- Solid aluminium case
- Size: 165x100x42mm

QUICK START MANUAL
http://flame.fortschritt-musik.de

FUNCTIONS

BRIEF OVERVIEW:
The CLOCKWORK includes 3 tracks with clock divider, clock shift, gate control, CV-out or LFO-out, clock/gate-out, Midi controllers, 1 fix Midi notenumber, record function (2 measures). The clock is based on internal clock or extern Midi clock. The least resolution is 1 tick. The LFO is also based on this resolution of 1 tick. The internal tempo range is between 20..220 beats/minute. Please look in list of Midi data for the defined Midi data of tracks.

MIDI-to-CV-INTERFACE: Output-jacks 4
The interface is MOOG-compatible: 1V/octave. You can use the interface stand-alone. Midi receive channel = 1 (fix), Range of notenumbers = 24..83, Notenumbers out of this range are ignored.

BEAT:
Clock devider is based on internal or external clock. Beats include normal, punctuated and triplet notes. Changing of beat results at next measure.

GATE:
Assigns the impuls length of clock/CV-out.
Please note: position OFF = track off
position max = HOLD (exept for sending Midi note)

SHIFT:
When switch is in position SHIFT (bottom), you can shift the track forward or backward with the SHIFT/CV ruler. In position minimum or maximum the shift lenght = half of beat (except beat= 1/32 or Tick).

CV:
When switch is in position CV (top), you can set the CV output of track with the SHIFT/CV ruler. In position LFO, the LFO is activated via CV output. Set the waveform with the second switch of track. Please note the dual positions of switch (track random on/off).

RANDOM:
Activate track random with switch RANDOM (ruler SHIFT/CV may not be in position LFO).
If ruler RANDOM is in center position the function is deactivated. In positions left/right you have different random alghorithm - please trial and error the effects.

SHUFFLE:
No shuffle in position center. Left = shuffle for eight notes. Right = shuffle for sixtheen part notes. (except punctuated and triplet notes), resolution is in tick.
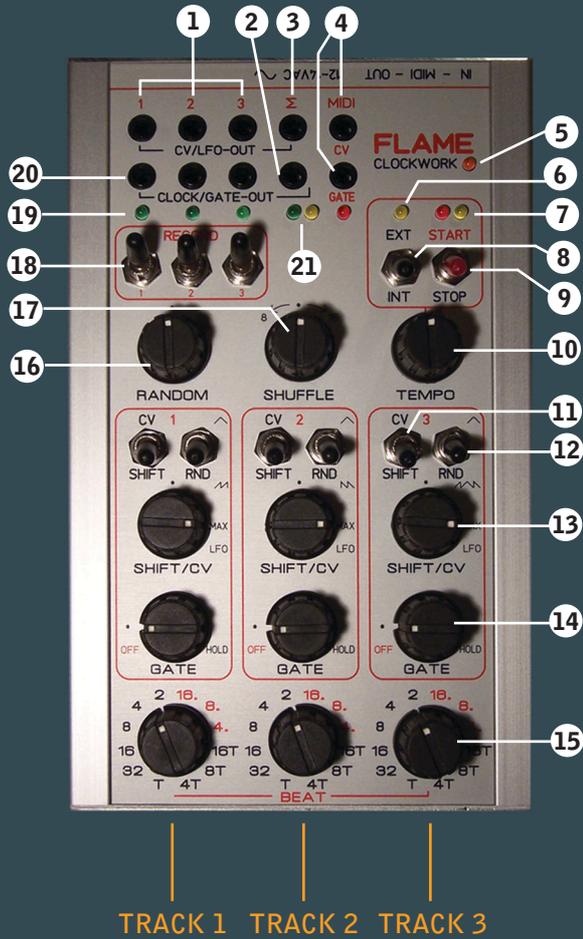
RECORD:
For each track you have one record switch. In normal mode please turn the switches in top position (RECORD) - When the sequencer is started, the parameters of tracks are continually recorded over the period of two measures: Following parameters of track1-3: Gate, Shift/CV-control, switches Shift/CV and Random (included Midi-Controller), additional: track1: Random control (incl. Midi-Controller), track2: Shuffle control (incl. Midi-Controller), track3: Midi-Controller of Tempo rule.
In position bottom the sequencer plays the recorded parameters automaticly (loop length = 2 measures).
Please note:
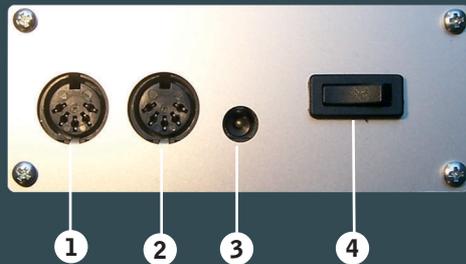The BEAT switches are not a part of record functions!

FRONT PANEL

1. OUTPUT CV 1-3 (0..2V) (3,5mm mono jack*)
2. OUTPUT sum clock/gate (3,5mm stereo jack*)
   Tip: Sum clock 1 tick lenght (0/5V)
   Ring: Sum gate lenght (0/5V)
3. OUTPUT sum CV 1-3 (0..2V) (3,5mm mono jack*)
4. MIDI-to-CV interface (2x 3,5mm mono jack*)
5. Power On LED orange
6. LED extern receive MIDI note
7. LED red: Start/Stop, LED yellow: Beat
8. Switch extern/intern MIDI clock
9. Switch start/stop
10. Ruler intern tempo
11. Switch CV/Shift track 3
12. Switch random on/off track 3
    or switch LFO wave (if ruler Shift/CV = LFO)
13. Ruler shift / CV / select LFO track 3
14. Ruler gate: off=track off, point: gate=1 tick
15. Select beat track 3
16. Ruler random: center position=off
17. Ruler shuffle: center position=off
18. Switches record track 1-3
19. LEDs clock/gate track1-3
20. OUTPUT clock/gate 1-3 (0/5V)
    (3x 3,5mm mono jack*)
21. LED sum clock/gate

* 3,5mm=1/8th inch

REAR PANEL

1. MIDI-IN connector
2. MIDI-OUT connector
3. AC-IN jack max.12..14VAC / min.500mA
4. Power switch (off-site=on)

LIST OF MIDI DATA

MIDI-CV-INTERFACE
Recognized: MIDI-Channel 1
               Notenumbers: 24..83

DRUM NOTES
Transmitted: MIDI-Channel 10

Track1	Track2	Track3
36	37	42

CONTROLLER RULER
Transmitted: MIDI-Channel 2

Track1	Track2	Track3
Gate: 73	Gate: 81	Gate: 84
Shift/CV: 70	Shift/CV: 80	Shift/CV: 83
Random: 74	Shuffle: 82	Tempo: 85

SWITCHES

Track:	1	2	3
Shift/CV:	64	66	68
Random:	65	67	69