FLAME

ARPEGGIATOR 2013 + X-2013

MANUAL

Version 1.09

1. Short description

ARPEGGIATOR-2013 Module

The module is a two-channel arpeggiator with seperatly analoge outputs for notes and two optional movable outputs for the sequence clock and the velocity. Both arpeggio tracks (referred to as "ARP" and "BASS") plays notes also via MIDI-out (different MIDI-channels 1 and 2). The first four notes of the ARP track notebuffer forms the chord. The chord analoge outputs are the CV-outputs 1-4 (notes 1-4). The MIDI-channel of the transmitted chord is channel 3.

Use the module-keyboard for setting the chord/scale notes. The one octave of the module-keyboard can move over four octaves (KEYZONE). It's possible to load preset chords/scales and user defined chords/scales (organized respectively 16 user patches U01..U16).

The arpeggiator mode included 9 arpeggio play modes with additional different running directions, like up, down, updown, downup and different variations of noterepeats.

You can control functions (as well as Arpeggio-Mode, Noterepeat, Octave-Range, Sequence-Pattern, Transpose ore others) via CV-inputs. Two CV-inputs (USER-1 and USER-2) can be set with individual functions.

The internal sequencer can be synchronized from external MIDI-clock or external Trigger clock. The module included two MIDI-clock divider for incomming or transmitted MIDI-clock (halftime playing sequencer and/or external sequencers).

Each of all 10 sequencer tracks (ARP, BASS, X-OUT 1-8) included a clockdivider (based of internal or external MIDI-clock ticks) and/or a different sequence pattern.

The CV-input LIST can be easy control the both arpeggio tracks ARP and BASS. The 12 list places can be use for auto-playing different chords/scales of ARP and BASS tracks with seperatly keynotes (chord/scale sequencer).

All individual settings can be saved permanently (to the internal EEPROM).

X-2013 Xpander-module

The X-2013 module features additional 8 clock/gate outputs and the jacks for MIDI-In, MIDI-Out and MIDI Thru. The 8 clock/gate outputs can be used like 8 independently clockdivider or sequencer tracks with internal or external MIDI-clock. Each output features different sequence-pattern, clock or gate of the track and send a fix MIDI note on MIDI channel 10.

Advice:
You can use the Arpeggiator-module without the X-2013 module, but without MIDI-options and the additional clock outputs.

Firmware versions can be loaded with the provided usb programming adapter (only with PC with Atmel FLIP).

2. Hardware / Connections

2.1 Connection to the modular system (Doepfer bus)
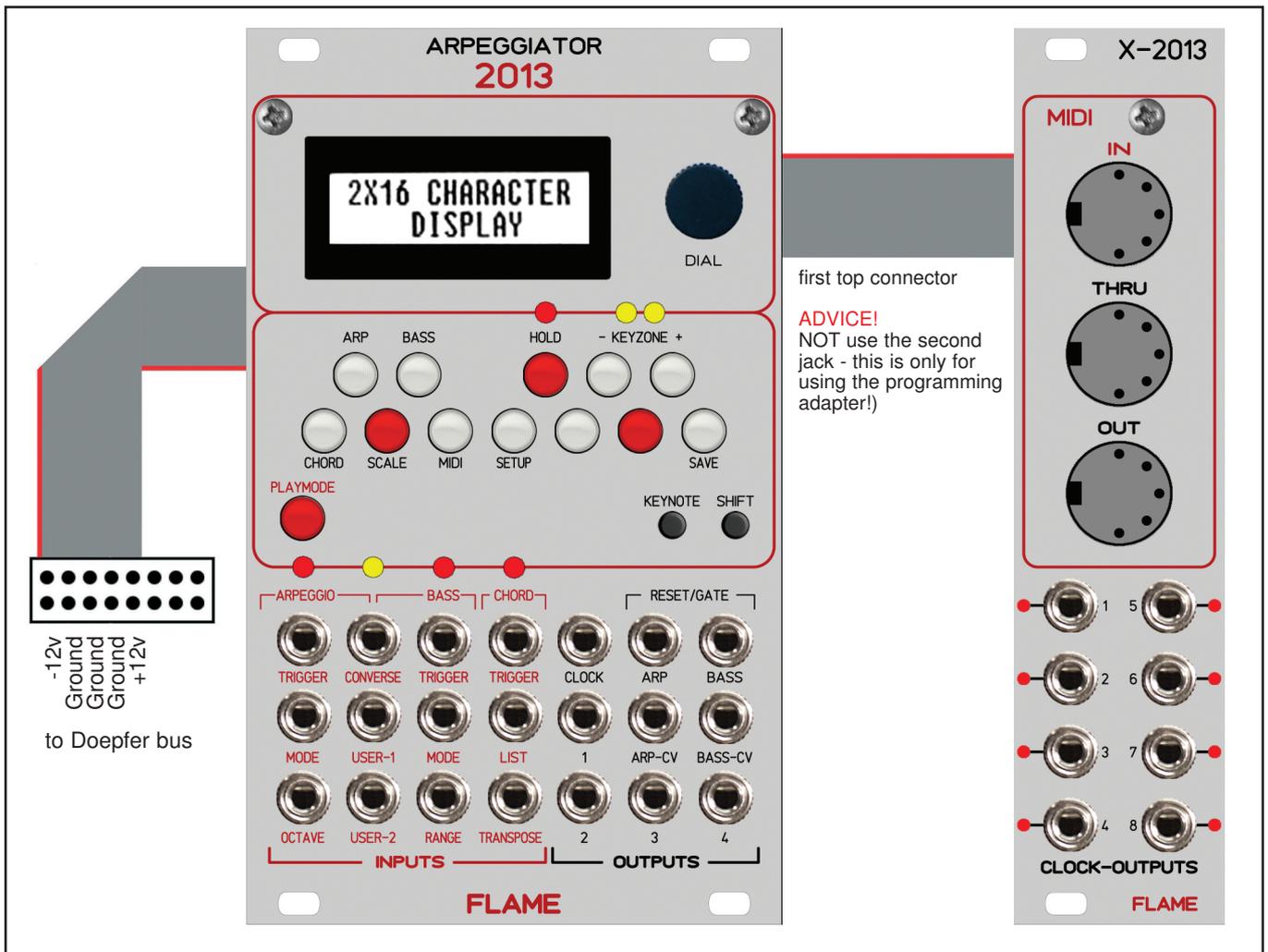
The module is delivered with a connected ribbon cable for the Doepfer bus. The red lead marks -12 volt. Connecting the module please note the right polarity!
If the module is poled accidentally wrong safety diodes avoid the immediate destruction of the module but further damages cannot be excepted. So please pay attention: Check the connection various times before switching on!

Advice ! Please check the correct connection several times before switching-on the module!

Please note: All the miniature precision rulers at the board are adjusted exactly to the correct justification of the reference voltage for the AD and DA converter. It must not be readjusted! The module would not more run precisely. A probably to big voltage could also damage the circuits.

2.2 Connecting X-2013 Xpander-module

We deliver both modules with connected cable. The X-2013 module is connected at the top first connector on right side. The subjacent second connector is the port for the provided programming adapter (firmware updates)

Advice !
Do NOT connected the programming adapter with the top port - this destroy the programming adapter!

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2.3 Module frontpanel overview

2x16 character display + Data entry knob with push button

Keyboard

MIDI Input

MIDI Thru

MIDI Output

8x Clockdivider Outputs (0/5volt)

4x Trigger Inputs (0/5volt)
8x CV-Inputs (0..5V)

3x Clock/Gate Outputs (0/5volt)
6x CV- Outputs (0..5V + 0..10V)

Sequencer structure:

intern Clock-

extern Midi-Clock-
(halftime options)

extern Analog Clock-
(Chord Trigger Input)

SEQUENCER

Track Arpeggio ARP
Track Arpeggio BASS
Track X-OUT-1
Track X-OUT 2
Track X-OUT 3
Track X-OUT-4
Track X-OUT 5
Track X-OUT-6
Track X-OUT 7
Track X-OUT 8

1x 16th clock output
1x Midi-Clock Output
(halftime options)

2x CV-Notes Out Arp/Bass
2x MIDI-Notes Arp/Bass
4x CV-Notes Out Chord
4x MIDI-Notes Chord

10x Clock/Gate Output
10x Midi-Notes Output

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3. FUNCTION

3.1 STRUCTURE SCHEMATA

CHORD+SCALE
(Preset+User Patches)

MODUL-KEYBOARD

KEYNOTE

CV-LIST Input
Chord Trigger

LIST

KN: keynote

< example liste

	ARP	KN	KN	BASS
1	Ch:P01	C	C	Sc:P01
2	Ch:P09	C	D	Sc:P02
3	Ch:P02	#C	C	Sc:P03
4	Sc:U01	C	C	Sc:P01
5	Ch:U01	D	#D	Ch:P01
6	Ch:P21	E	E	Ch:U02
7	Ch:U16	#F	#F	Sc:P01
8	Ch:P01	C	#C	Sc:P01
9	Ch:P05	A	A	Sc:P02
10	Ch:P14	C	C	Sc:P01
11	Sc:P01	B	B	Sc:P05
12	Ch:U01	C	D	Sc:U01

ARP
DATA

BASS
DATA

ARP
Arpeggiator

BASS
Arpeggiator

Notes 1..4

CHORD
Out

Resets

Sequence

Velocity

Velocity

Sequence

Resets

OUT
Reset/Gate
ARP

CV-OUT
ARP

OUT
CV-3

OUT
CV-1

OUT
CV-2

OUT
CV-4

CV-OUT
BASS

OUT
Reset/Gate
BASS

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4. MENU ARP / BASS

Call MENU ARP:
Push down Key SHIFT and Key ARP ("CIS")

Call MENU BASS:
Push down Key SHIFT and Key BASS ("DIS")

Change also the MAINMENU while push down
and turn the data-entry-knob!
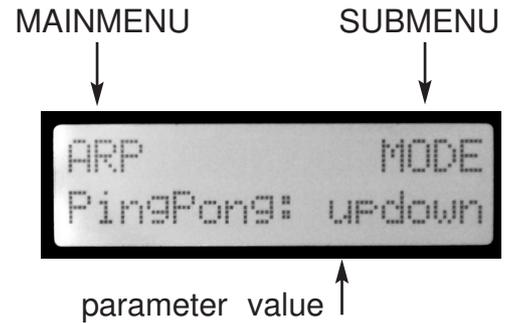
MAINMENU   SUBMENU

```
ARP            MODE
PingPong: updown
```

parameter value

Call SubMenus and set values:

Toggle between Submenu selection and value selection: Push data-entry-knob
Blink Submenu ON: you select the submenu of your choise by turning the data-entryknob
Blinking OFF: you select the parameter of your choise by turning the data-entryknob

Both menus ARP and BASS are identical exept the setting of the CV-output VELOCITY:

Velocity ARP output CV-out 3
Velocity BASS output CV-out 4

You can set directly notes on/off (please note HOLD option).

Please use for loading preset/user chords/scales the menus CHORD and SCALE (see below).

4.1 Menu ARP / BASS: Functions with parameters

MODE	
- Classic:	up, down, updown, downup
- Copy:	up+down, down+up
- PingPong:	up, down, updown, downup
- Fit Root:	up, down, updown, downup
- Fit Octave:	up, down, updown, downup
- Skip:	up, down
- Inversion:	up, down
- Ordered:	up, down
- Random	

NOTEREPEAT
- off
- each: 1..3
- Alternate first: 1..3
- Alternate 2nd: 1..3

RANGE
- 1..5 octaves

GLIDE
- off, Portamento Time: 1..126

SEQU	- mirrored sequence (bass/arp) - Sequence pattern: 63 Presets (P) + 63 User (U)
CLOCK	- Normal (duple) - Triplets - Dots
GATE	- adapted: 1..8 - adapted random: 1-5, 1-8, 3-8
VELOCITY	- Accent each: 2,3,4,5,6,7,8,9th - Random: 1..127, 64..127, 76..127, 95..127, 112..127, formula - fix: 127..1
SEQU-MODE	- step by step, combined
LOOP-RESET	- off, at arpeggio end, at sequence end
OUT-GATE	- Sequence (Gate) - Reset per Bar
OUT-CV	- Out-3: Velocity (Menu ARP) Out-4: Velocity (Menu BASS) - Out-3: Chord note (Menu ARP) Out-4: Chord note (Menu BASS)

4.2 Menu ARP / BASS: MODE

```
ARP              MODE
PingPong: updown
```

MODE = Play algorithm of the arpeggios

1. MODE: CLASSIC

UP:
classic mode plays notes from down to up and loop ...
DOWN:
classic mode plays notes from up to down and loop ...
UPDOWN:
arpeggion begins down and play alternated updown in loop ...
DOWNUP:
arpeggio begins up and play alternated downup in loop...

2. MODE: COPY

UP+DOWN:
plays mode Classic UP and DOWN in series.
(as distinguished from CLASSIC UPDOWN: the Most High and the deepest notes plays done twice).
DOWN+UP:
plays mode Classic DOWN and UP in series.
(as distinguished from CLASSIC UPDOWN: the Most High and the deepest notes plays done twice).

3.MODE: PINGPONG
Plays notes alternatly from down and up:
Example chord C-major 6, pressed notes: C E G A

UP: C A E G
DOWN: A C G E
UPDOWN: C A E G A C G E
DOWNUP: A C G E C A E G

4. MODE: FIT ROOT
Insert root note (deepest note):
Example chord C-major 6, pressed notes: C E G A

UP: C E C G C A
DOWN: A C G C E C
UPDOWN: C E C G C A C G C E
DOWN: A C G C E C E C G C

5. MODE: FIT OCTAVE
Insert root note (deepest note), transposed one octave higher:
Example chord C-major 6, pressed notes: C E G A

UP: C C1 E C1 G C1 A C1
DOWN: A C1 G C1 E C1 C C1
UPDOWN: C C1 E C1 G C1 A C1 A C1 G C1 E C1 C C1
DOWN: A C1 G C1 E C1 C C1 C C1 E C1 G C1 A C1

6. MODE: SKIP
Skipping notes:
Example chord C-major 6, pressed notes: C E G A

UP: **C** E G A **E** G A C **G** A C E **A** C E G
DOWN: **A** G E C **G** E C A **E** C A G **C** A G E

7. MODE: INVERSION
Plays threefold chord inversions: root, 1st and 2nd inversion:
Example chord C-major 6, pressed notes: C E G A

UP: C E G A **E G A C1** G A C1 E1
DOWN: E1 C1 A **G C1 A G** E A G E C

8. MODE: ORDERED
Plays notes in order of input (sort OFF).

UP: normaly.
DOWN: UP backwards

9. MODE: RANDOM
Plays notes in randomized order.

CONVERSE (not available,if SYNC="All Trigger In" and "ArpTrig XoutMIDI")

Trigger-Input "CONVERSE" set the MODE of Arpeggio ARP converse to the MODE of BASS.
Booth Arpeggios plays then in converse mode.

Example:
CONVERSE OFF: BASS Mode: classic up >> ARP Mode: Fit root updown
CONVERSE ON: BASS Mode: classic up >> ARP Mode: classic down (converse)

4.3 Menu ARP / BASS: NOTEREPEAT

NOTEREPEAT of playing notes.

```
ARP    NOTEREPEAT
         each:  1
```

OFF
Don't repeat notes:
Beispiel: C D E   Noterepeat OFF: C D E

EACH (1..3)
Each notes repeat 1, 2 or 3x. (If Repeat= 3 then the note plays four times!)
Example: C D E   Noterepeat Each: 1   CC DD EE CC DD EE ...
                             Noterepeat Each: 2   CCC DDD EEE CCC DDD EEE ...

ALTERNATE 1st (1..3)
Each second notes (beginning from first note) repeat 1, 2 or 3x.
Example: C D E   Noterepeat Alternate 1st: 2   CCC D EEE C DDD E ...
                             Noterepeat Alternate 1st: 3   CCCC D EEEE C DDDD E ...

ALTERNATE 2nd (1..3)
Each second notes (beginning from second note) repeat 1, 2 or 3x.
Example: C D E   Noterepeat Alternate 2nd: 1   C DD E CC D EE ...
                             Noterepeat Alternate 2nd: 2   C DDD E CCC D EEE ...

4.4 Menu ARP / BASS: RANGE

```
ARP            RANGE
        2 octaves
```

RANGE determines the range of the single notes in octaves. When it is set to 1 octave, the note list will be played back in the same octave as originally entered. Greater values mean that the note list is repeated in higher or lower octaves. If you play notes that span more than one octave, they are still kept in the note list and played back before the note list is transposed.

RANGE values: 1..5 octaves

4.5 Menu ARP / BASS: GLIDE

```
ARP            GLIDE
Portam.Time: 005
```
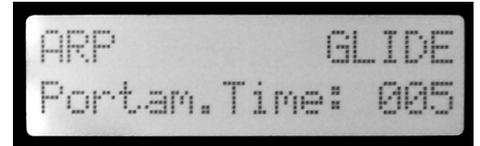
GLIDE determines the portamento time of the notes (from CV-outputs), die über den CV-Ausgang gespielt werden eingestellt. (Advice: Not the Portamento of MIDI-notes!).

GLIDE values: - OFF (portamento is deactiv)
                           - Portam.Time: 001 ...126
                             (small values: fast, larger values: slowly)

The speed of the portamento is automatically conform in different tempi.
(internal tempo only)

4.6 Menu ARP / BASS: SEQ (SEQUENCE PATTERN)
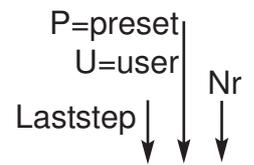
Here sets or edit the sequence pattern that is used for generating the arpeggio. You can use 63 preset ROM sequence pattern and 63 user sequence pattern.

P=preset
U=user
Nr
Laststep

```
ARP        SEQ:16P08
```

Laststep is the lenght of the pattern (number of steps):
Example:
16P08: 16 steps Preset Sequence Nr. 08
05U01: 5 steps User Sequence Nr. 01
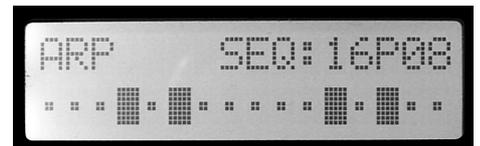
The first three patterns have this functions:

Pattern 16P00: mirrored sequence

Example:
BASS Sequence plays this pattern:

ARP with "mirrored sequBass" plays
the mirrored BASS pattern:

Sequence 16P01 don't play steps (all steps of pattern Off):
The arpeggiator track is OFF.
Sequence 16P02 play each step:
The arpeggiator plays back a continuous sequence of notes with the current Clock setting.

You can set also the sequence pattern with CV-inputs USER (see below Menu SETUP)

PATTERN DIRECTION

	Preset Pattern	User Pattern
mirrored	16P00	
16 Steps Lenght:	16P01..16P32	16U01..16U32
12 Steps Lenght:	12P01..12P31	12U01..12U31
5 Steps Lenght:	05P01..05P08	05U01..05U08
7 Steps Lenght:	07P01..07P08	07U01..07U08
9 Steps Lenght:	09P01..09P08	09U01..09U08
10 Steps Lenght:	10P01..10P08	10U01..10U08
11 Steps Lenght:	11P01..11P08	11U01..11U08
13 Steps Lenght:	13P01..13P08	13U01..13U08
14 Steps Lenght:	14P01..14P08	14U01..14U08
15 Steps Lenght:	15P01..15P08	15U01..15U08

EDIT SEQUENCE PATTERN

How you can create sequence pattern and save the pattern on user memory cell:

1. At first go to the menu "ARP SEQ" or "BASS SEQ".

2. Select the pattern with relevant Laststep (step lenght of pattern).

3. Set or clear the steps of the sequence with the lower note keys C-B and CIS.
     Step 1 or 9 > Key C
     Step 2 or 10> Key CIS
     Step 3 or 11> Key D
     Step 4 or 12> Key E
     Step 5 or 13> Key F
     Step 6 or 14> Key G
     Step 7 or 15> Key A
     Step 8 or 16> Key B

4. Toggle between step groups 1-8 and 9-16 with the keys #G and #A (Keyzone) . The LCD displays the complete sequence. The illuminated keys displays the set/cleared steps of the selected group.

5. Store the sequence: Go to the SAVE menu (push keys SHIFT+SAVE). Select a memory cell (turn the data-entry-knob) and push key "KEYNOTE".

Advice: You can only store in the same Laststep group.

4.7 Menu ARP / BASS: CLOCK

(not available,if SYNC="ARP+BASS Trigger")

```
ARP               CLOCK
6 Ticks:           1/16
```
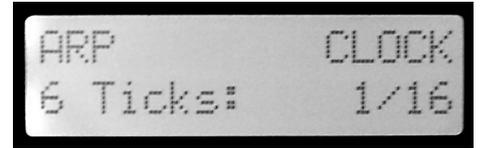
Sets the note value for the steps of the rhythm pattern (SEQU pattern) in a
range from one tick to one bar (whole note). Additional triplets and dotted notes are available
for every note value.

Examples: 6 Ticks: 1/16   16th notes
            9 Ticks: 1/16 dot   16th dotted notes
            4 Ticks: 1/16 tri   16th triplets

4.8 Menu ARP / BASS: GATE

(not available,if SYNC="ARP+BASS Trigger")
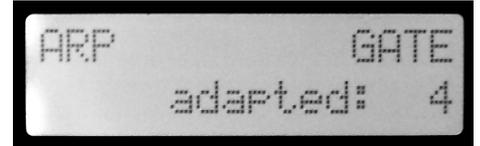
```
ARP                GATE
         adapted:     4
```

GATE is the time between Note-On and Note-Off. The GATE time values are adapted in relation
to the Clock of the sequence ("adapted").

The Reset/gate outputs from ARP and BASS plays the clock/gate sequences.

For that purpose you have to set the value of submenu "OUT-GATE" to "Sequencer(Gate)"
(see below).

Following values are allways definitely:

adapted: 1   GATE time is allways the time of 1 tick.
adapted: 8   GATE time is allways the time of value CLOCK of the sequence.

With "adapted:8" you can play notes
without note off (bonded):
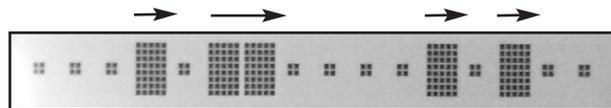
4.9 Menu ARP / BASS: VELOCITY

```
ARP            VELOCITY
Accent: each 2nd
```
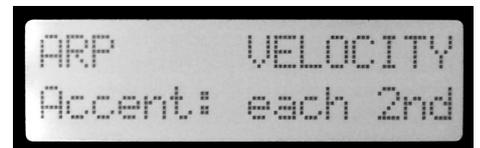
Determined the Velocity of transmitted MIDI-notes of the arpeggio.
Also you can issue the velocity as voltage 0..5volt on CV-output 3 (velocity of ARP track) and
CV-output 4 (velocity of BASS track). For that purpose you have to set the value of submenu
"OUT-CV" to "Velocity"" (see below).

Following values are possible:

FIX: 1..127   fix value between 1..127
ACCENT: each 2nd..9th   accent
RANDOM: x..127   range of randomized velocity
RANDOM: formula   random formula

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4.10 Menu ARP / BASS: SEQU-MODE

```
ARP      SEQU-MODE
  step by step
```

SEQUENCE-MODE determines the match of the arpeggio steps with steps of the sequence.

step by step:
Each step of sequence play the next note of the arpeggio (normaly mode).

Example:
Arpeggio notes: C D E F G A H ...   Sequence play:

```
C      D E          F    G
```
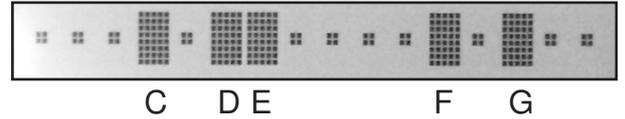
combined :
The "combined mode" merge the sequence with the arpeggio notes.

Example:
Arpeggio notes: C D E F G A H ...   Sequence play:
than:

```
           F    A H            G    H
C D E F G A H C D E F G A H C D
```
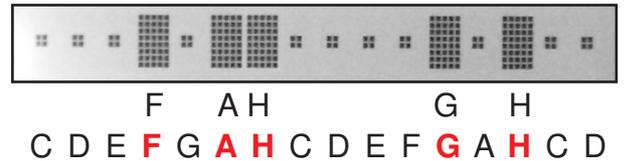
4.11 Menu ARP / BASS: LOOP-RESET

```
ARP     LOOP-RESET
  at arpeggio end
```
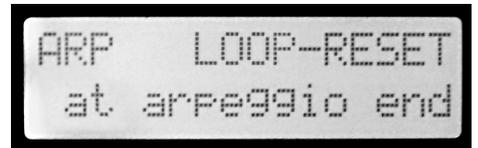
OFF: no reset
AT ARPEGGIO END: Loop Reset at arpeggio end
AT SEQUENCE END: Loop Reset at sequence pattern end

4.12 Menu ARP / BASS: OUT-GATE

```
ARP       OUT-GATE
  Sequence(Gate)
```
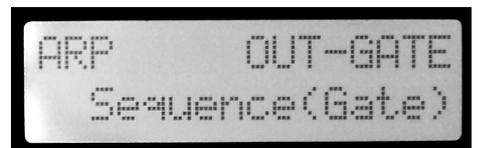
SEQUENCE(GATE): Sequence output over Reset/Gate output jack
RESET PER BAR: Reset impulse per bar over Reset/Gate output jack
                (available only SEQUENCE(GATE), if SYNC=Arp+Bass Trigger)

4.13 Menu ARP / BASS: OUT-CV

```
ARP          OUT-CV
Out-3:   Velocity
```
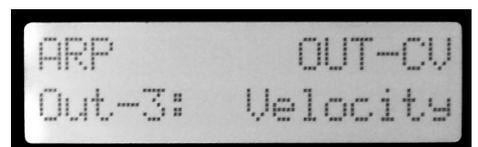
VELOCITY: Velocity voltage output over CV-3 output jack (BASS CV-4 output)
CHORD NOTE: Chord note 3 output over CV-3 output jack
                 (BASS: chord note 4 over CV-4 output jack)

5. MENU CHORD / SCALE

5.1 Description

Call MENU CHORD:
Push down Key SHIFT and Key CHORD ("C")

Change also the MAINMENU while push down
and turn the data-entry-knob!

MENU "CHORD"   Target   Chord-NR
P=Preset, U=User

```
CHORD>AB      P02
        Major 6
```

Chord name
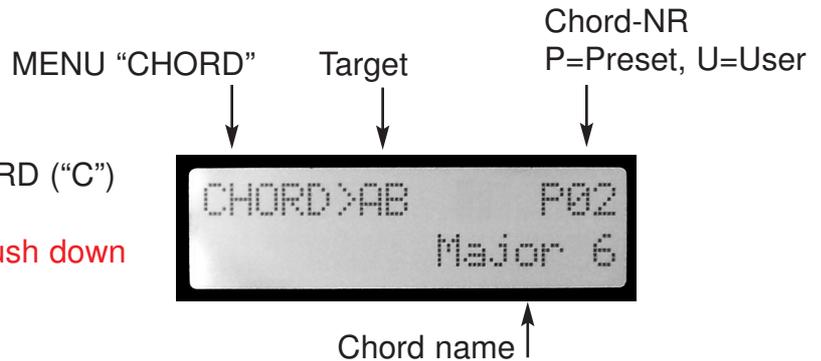
Call MENU SCALE:
Push down Key SHIFT and Key SCALE ("D")

Change also the MAINMENU while push down
and turn the data-entry-knob!
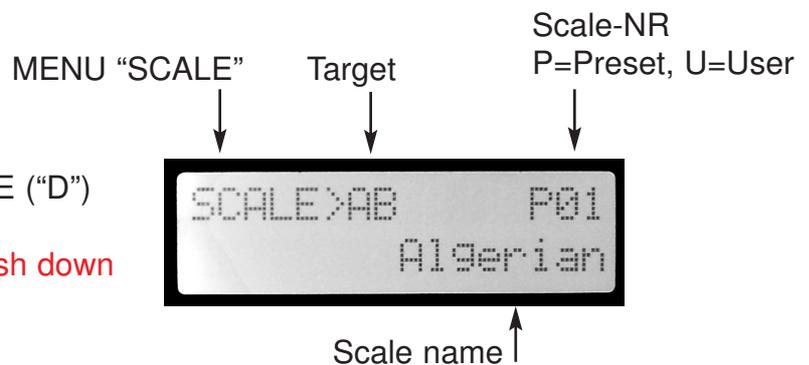
MENU "SCALE"   Target   Scale-NR
P=Preset, U=User

```
SCALE>AB      P01
        Algerian
```

Scale name

Set the KEYNOTE:
Push and Hold down key "KEYNOTE " and push the key for set the Keynote. The LED of the
key displays the Keynote.

You found the keynotes of ARP and BASS in
the second row of the Keynote menu:

```
KEYNOTE:  C  C
```

Target:
"Target" means, that the notes are loaded likewise to ARP and BASS buffer.
For setting different notes in ARP / BASS buffer please use the LIST function (see below).

Load preset/user chords/scales:
Turn the data-entry-knob.
Notes begins to load (automatically transposed) to the octave 1 of the modul keyboard.
You can see the notes on the LEDs of the keys.

While loading notes, "HOLD" will be set to "ON" automatically. You can clear all notes if you set
the "HOLD" function "OFF" (Push and hold down key SHIFT and HOLD).

5.2 Preset chords

NR	NAME	notes	chord
P01	UNISONO	4	0,0,0,0
P02	OCTAVES 1	2	0,12,0,12
P03	OCTAVES 2	3	0,12,24,0
P04	OCTAVES 3	4	0,12,24,36
P05	FIFTH 1	2	0,7,0,7
P06	FIFTH 2	4	0,7,14,21
P07	FOURTH 1	2	0,5,0,5
P08	FOURTH 2	4	0,5,10,15
P09	THIRD maj1	2	0,4,0,4
P10	AUGMENTED	3	0,4,8,12
P11	THIRD min1	2	0,3,0,3
P12	DIMINISHED	3	0,3,6,12
P13	MINOR add9	4	0,3,7,14
P14	MINOR 7/11	4	0,3,10,17
P15	MINOR 7 b5	4	0,3,6,10
P16	MINOR 7/9	4	0,3,10,14
P17	MINOR maj7	4	0,3,7,11
P18	MINOR b5	3	0,3,6,12
P19	MINOR 7	4	0,3,7,10
P20	MINOR 6	4	0,3,7,9
P21	MINOR	3	0,3,7,12
P22	MAJOR	3	0,4,7,12
P23	MAJOR 6	4	0,4,7,9
P24	MAJOR 7	4	0,4,7,10
P25	MAJOR maj7	4	0,4,7,11
P26	MAJOR sus4	3	0,5,7,12
P27	MAJOR sus2	3	0,2,7,12
P28	MAJOR 6/9	4	0,4,9,14
P29	MAJOR #5	3	0,4,8,12
P30	MAJOR b5	3	0,4,6,12
P31	MAJOR 7/4	4	0,5,7,10
P32	MAJOR 7 #5	4	0,4,8,10
P33	MAJOR 7 b5	4	0,4,6,10
P34	MAJOR 7/9	4	0,4,11,14
P35	MAJOR 7 b9	4	0,4,11,13
P36	MAJOR 7 #9	4	0,4,11,15
P37	MAJOR add9	4	0,4,7,14
P38	MAJ 7/9/11	4	0,11,14,17
P39	MAJOR 7/13	4	0,11,16,21
P40	MAJ 7/9/13	4	0,11,14,21
P41	MAJOR 7b11	4	0,4,11,18
P42	UNISONO	4	0,0,0,0

U01-U16 User chords   1..12

5.3 Preset scales

NR	NAME	notes	scale	chord (see notes below)
P01	Agerian	8	0,2,3,5,6,7,8,11	0,3,5,7
P02	Arabian	6	0,1,4,5,7,8	0,4,7,8
P03	Balinesian	5	0,1,3,7,8	0,3,7,8
P04	Blues major	6	0,3,4,7,9,10	0,3,7,10
P05	Blues minor	6	0,3,5,6,7,10	0,3,5,10
P06	Byzantine	7	0,1,4,5,7,8,11	0,4,7,11
P07	Chromatic	12	0,1,2,3,4,5,6,7,8,9,10,11	0,3,7,10
P08	Diatonic	5	0,2,4,7,9	0,2,4,7
P09	Double Harmonic	7	0,1,4,5,7,8,11	0,4,7,11
P10	Enigmatic	7	0,4,8,11,1,6,10	0,4,8,11
P11	Egyptian	5	0,2,5,7,10	0,5,7,10
P12	Hindustan	7	0,2,4,5,7,8,10	0,4,7,10
P13	Hungarian major	7	0,3,4,6,7,9,10	0,4,7,10
P14	Hungarian minor	7	0,2,3,6,7,8,11	0,3,7,11
P15	Japan: hira-yoshi	5	0,2,3,7,8	0,3,7,8
P16	Japan: iwato-yoshi	5	0,1,5,6,10	0,5,6,10
P17	Japan: kumoi-yoshi	5	0,1,5,7,8	0,5,7,8
P18	Japan: insen	5	0,1,5,7,10	0,5,7,10
P19	Japan: yosen	5	0,1,5,7,10	0,5,7,10
P20	Japan: ritsusen	5	0,2,5,7,10	0,5,7,10
P21	Japan: ryosen	5	0,2,4,7,9	0,4,7,9
P22	major Locrian	7	0,2,4,5,6,8,10	0,4,6,10
P23	super Locrian	7	0,1,3,4,6,8,10	0,3,6,10
P24	Lydian minor	7	0,2,4,6,7,8,10	0,4,7,10
P25	Major	7	0,2,4,5,7,9,11	0,4,7,9
P26	Major 6	4	0,4,7,9	0,4,7,9
P27	Major 7	4	0,4,7,11	0,4,7,11
P28	Major 7 b5	4	0,4,6,10	0,4,6,10
P29	Minor (Aeolian)	7	0,2,3,5,7,8,10	0,3,7,10
P30	Minor 6	4	0,3,7,9	0,3,7,9
P31	Minor 7	4	0,3,7,10	0,3,7,10
P32	Minor harmonic	7	0,2,3,5,7,8,11	0,3,7,11
P33	Mode: Ionian	7	0,2,4,5,7,9,11	0,4,7,11
P34	Mode: Dorian	7	0,2,3,5,6,9,10	0,2,6,10
P35	Mode: Phrygian	7	0,1,3,5,7,8,10	0,3,7,10
P36	Mode: Lydian	7	0,2,4,6,7,9,11	0,4,7,11
P37	Mode: Mixolydian	7	0,2,4,5,7,9,10	0,4,7,10
P38	Mode: Aeolian	7	0,2,3,5,7,8,10	0,3,7,10
P39	Mode: Locrian	7	0,1,3,5,6,8,10	0,3,6,10
P40	Neapolitan major	7	0,1,3,5,7,9,11	0,3,7,9
P41	Neapolitan minor	7	0,1,3,5,7,8,11	0,3,7,11
P42	Nine Tone	9	0,2,3,4,6,7,8,9,11	0,3,7,9
P43	Octatonic	8	0,1,3,4,6,7,9,10	0,4,7,10
P44	Oriental	7	0,1,4,5,6,9,10	0,4,6,10
P45	Overtone	7	0,2,4,6,7,9,10	0,4,7,10
P46	Pelog	5	0,1,3,7,8	0,3,7,8
P47	Pentatonic	5	0,2,5,7,9	0,5,7,9
P48	major Pentatonic	5	0,2,4,7,9	0,4,7,9
P49	minor Pentatonic	5	0,3,5,7,10	0,3,5,7
P50	Prometheus	5	0,2,4,6,10	0,4,6,10
P51	Spanish	7	0,1,4,5,7,8,10	0,4,8,10
P52	Symmetrical	8	0,1,3,4,6,7,9,10	0,3,6,9
P53	Wholetone	6	0,2,4,6,8,10	0,4,8,10
P54	leading Wholetone	7	0,2,4,6,8,10,11	0,4,8,11
U01-U16	User scales	1..12		

Note: If a scale is used for the ARP track, the chord specified above is created from this!

6. MENU LIST

6.1 Structure Arp/Bass List

LIST			
ARP	KN	KN	BASS
Ch:P01	C	C	Sc:P01
Ch:P09	C	D	Sc:P02
Ch:P02	#C	C	Sc:P03
Sc:U01	C	C	Sc:P01
Ch:U01	D	#D	Ch:P01
Ch:P21	E	E	Ch:U02
Ch:U16	#F	#F	Sc:P01
Ch:P01	C	#C	Sc:P01
Ch:P05	A	A	Sc:P02
Ch:P14	C	C	Sc:P01
Sc:P01	B	B	Sc:P05
Ch:U01	C	D	Sc:U01

list places 1 .. 12

< list example

KN: KEYNOTES ARP + BASS
ARP: Memory chord or scale-Nr
BASS: Memory chord or scale-Nr

CONVERSE: for each list place (from v1.08)

The CV-input LIST (0..5volt) can be easy control the both arpeggio tracks ARP and BASS. The 12 list places can be use for auto-playing different chords/scales of ARP and BASS track with seperatly keynotes (chord/scale sequencer).

0volt: - List deactivated   >0...+5volt: - List places 1..Lenght selectable

You can select a list place manually in menu LIST or in menu PLAYLIST (push note keys for select the place - see below). In this case you can load different chords/scales and different keynotes at the same time for the ARP and BASS tracks.

TRANSPOSE

The List can be transposed additional with the voltage from CV-input TRANSPOSE (12 semitones).

6.1 Edit Arp/Bass List

MENU "LIST"   Submenu   place   Keynote   c=Chord, s=Scale   P=Preset, U=User
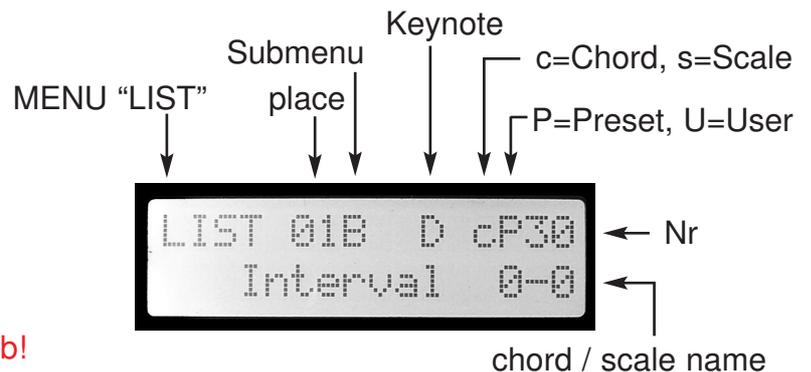
Call MENU LIST:
Push down Key SHIFT and Key "A"

```
LIST 01B  D cP30   ← Nr
     Interval  0-0
```

chord / scale name

Change also the MAINMENU while push down and turn the data-entry-knob!

18

Call SUBMENUs: "A" ARP, "B" BASS, "LENGHT" list lenght and set values:

Toggle between Submenu selection and value selection: Push data-entry-knob
Blink Submenu ON: you select the submenu of your choise by turning the data-entryknob
Blinking OFF: you select the parameter of your choise by turning the data-entryknob
.
Possible values:
A (ARP):   chords cP01..cU16 or scales sP01..sU16
B (BASS):   chords cP01..cU16 or scales sP01..sU16
Lenght: 1..12

Place:
This is one of 12 list places. Select list place with note keys C-B.
On each place you can set seperatly the chord/scale/keynote for ARP and the chord/scale/keynote for BASS.

Set the KEYNOTE:
Push and Hold down key "KEYNOTE " and push the key for set the Keynote. The LED of the key displays the Keynote.

You found the keynotes of ARP and BASS in
the second row of the Keynote menu:

Load Chord or Scale (Submenu A or B, Blinking OFF!):
Turn the data-entryknob.
Notes begins to load (automatically transposed) to the octave 1 of the modul keyboard.
You can see the notes on the LEDs of the keys.

While loading the "HOLD" will be set to "ON" automatically. You can clear all notes while set the "HOLD" function "OFF" : Push and hold down key SHIFT and HOLD. (Please note: This clear not the listplace - only the note buffer!)

since Version 1.08:

Sub menu CONVERSE:
Switch the CONVERSE function on or off for the list location. .

Sub menu LOAD LIST:
Load one of 20 user lists or 8 preset lists into the RAM.

Advice:
- When the module is switched on, the last saved list is loaded!
- The function "LIST LENGHT" is no longer valid as of version 1.08!

SAVE LIST:
Store the list: Go to the SAVE menu (push keys SHIFT+SAVE). Select a memory cell (turn the data-entry-knob) and push key "KEYNOTE".

6.3 PLAYLIST MENU

Call PLAYLIST MENU:
Push down key SHIFT and key "PLAYMODE"

Change also the MAINMENU while push down and turn the data-entry-knob!

c=chord, s=scale ARP

keynote ARP

list place

parameter or
value of CV
input USER-1

value of CV input
TRANSPOSE →

```
L01   C cP01 Antr
T00   C cP30 Bntr
```

keynote BASS

c=chord, s=scale BASS

parameter or
value of CV
input USER-2
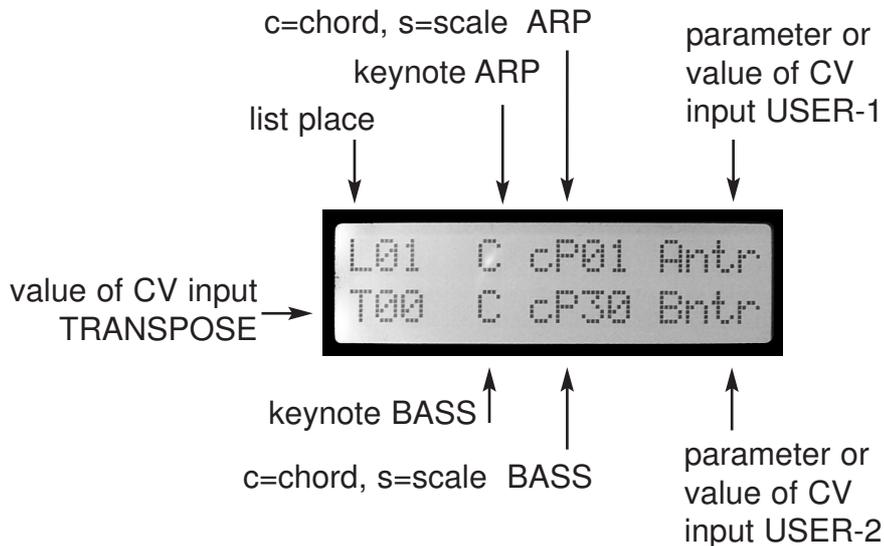
L01..12 (list place)
This is one of twelve list places. Push down the keys C-B for calling one of the twelve list places. This loads the data (chord/scale/keynotes) of the list place. Also you can call the list places with the CV input "LIST" (activated by the CHORD trigger input).

T00..12 (Transpose)
This is the value of the CV input "TRANSPOSE". 12 semitones are possible.

Keynote
The second value in the top LCD row is the keynote of the ARP arpeggio of the selected list place. You found the keynote of the BASS arpeggio in the second LCD row.

Chord/Scale
The next value in the top LCD row is the selected chord or the selected scale of the ARP arpeggio of the selected list place.
You found the selected chord or scale of the BASS arpeggio in the second LCD row.

c = Chord   s = Scale   P = preset   U = user

Status of the USER 1 and 2 CV inputs
The last value in the top LCD row displays the parameter and the value of the CV input "USER-1" (alternately blinking of both parameter and value).
The last value in the second LCD row displays the parameter and the value of the CV input "USER-2" (alternately blinking of both parameter and value).

```
L01   C cP01 Antr          ← parameter
T00   C cP30 Bntr
```

```
L01   C cP01  001          ← value
T00   C cP30  001
```

7. MENU SETUP

Call MENU SETUP:
Push down Key SHIFT and Key SETUP ("F")

Change also the MAINMENU while push down
and turn the data-entry-knob!
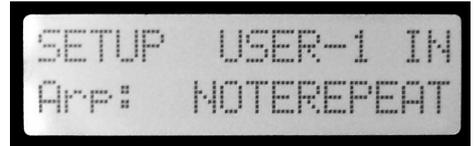
```
SETUP  USER-1 IN
Arp:  NOTEREPEAT
```

Call SubMenus and set values:

Toggle between Submenu selection and value selection: Push data-entry-knob
Blink Submenu ON: you select the submenu of your choise by turning the data-entryknob
Blinking OFF: you select the parameter of your choise by turning the data-entryknob

7.1 TUNE-MODE

```
SETUP  TUNE-MODE
Set CV-OUTs:  +0V
```

Set all CV-outputs of the module in UNISONO mode
for better tuning connected oscillators.
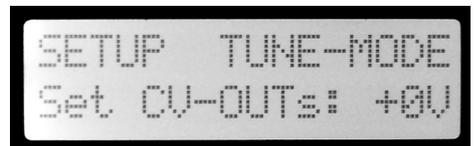
You can set the voltage on all CV output jacks in 1 volt steps from 0 to +5volt
(note C in octave steps).

Advice: While the sequencer is run, the output setting is inactiv.

7.2 Setup USER-1/2 Inputs

Determines the function (parameter control) of the CV-inputs USER-1 and USER-2.

You can use the booth inputs for control different parameters of the arpeggiator channels ARP,
BASS and XOUT.

USER-1 controls ARP, X-1, X-2, X-3 and X-4 parameters.
USER-2 controls BASS, X-5, X-6, X-7 and X-8 parameters.

Table of possible parameters:

CV input USER-1		CV input USER-2	
parameter	short cut	parameter	short cut
Arp: Portamento	'Apor'	Bass: Portamento	'Bpor'
Arp: Noterepeat	'Antr'	Bass: Noterepeat	'Bntr'
Arp: Sequences all	'Aseq'	Bass: Sequences all	'Bseq'
Arp: Clock all	'AClk'	Bass: Clock all	'BClk'
Arp: Clock duple	'Aduo'	Bass: Clock duple	'Bduo'
Arp: Clock triplets	'Atri'	Bass: Clock triplets	'Btri'
Arp: Clock dots	'Adot'	Bass: Clock dots	'Bdot'
Arp: Gate	'Agat'	Bass: Gate	'Bgat'
Arp: Velocity 1..127	'V127'	Bass: Velocity 1..127	'V127'
Arp: Velocity Acc+Random	'Vrnd'	Bass: Velocity Acc+Random	'Vrnd'
X-1: Sequences all	'1seq'	X-5: Sequences all	'5seq'
X-1: Clock all	'1Clk'	X-5: Clock all	'5Clk'
X-1: Clock duple	'1duo'	X-5: Clock duple	'5duo'
X-1: Clock triplets	'1tri'	X-5: Clock triplets	'5tri'
X-1: Clock dots	'1dot'	X-5: Clock dots	'5dot'
X-1: Gate	'1gat'	X-5: Gate	'5gat'
X-2: Sequences all	'2seq'	X-6: Sequences all	'6seq'
X-2: Clock all	'2Clk'	X-6: Clock all	'6Clk'
X-2: Clock duple	'2duo'	X-6: Clock duple	'6duo'
X-2: Clock triplets	'2tri'	X-6: Clock triplets	'6tri'
X-2: Clock dots	'2dot'	X-6: Clock dots	'6dot'
X-2: Gate	'2gat'	X-6: Gate	'6gat'
X-3: Sequences all	'3seq'	X-7: Sequences all	'7seq'
X-3: Clock all	'3Clk'	X-7: Clock all	'7Clk'
X-3: Clock duple	'3duo'	X-7: Clock duple	'7duo'
X-3: Clock triplets	'3tri'	X-7: Clock triplets	'7tri'
X-3: Clock dots	'3dot'	X-7: Clock dots	'7dot'
X-3: Gate	'3gat'	X-7: Gate	'7gat'
X-4: Sequences all	'4seq'	X-8: Sequences all	'8seq'
X-4: Clock all	'4Clk'	X-8: Clock all	'8Clk'
X-4: Clock duple	'4duo'	X-8: Clock duple	'8duo'
X-4: Clock triplets	'4tri'	X-8: Clock triplets	'8tri'
X-4: Clock dots	'4dot'	X-8: Clock dots	'8dot'
X-4: Gate	'4gat'	X-8: Gate	'8gat'

You can see the parameters and values in the Playlist menu:
alternately blinking of both parameter and value (see the short cuts in the table).

>> See below PLAYLIST MENU

8. MENU X-OUT

Call MENU X-OUT:
Push down Key SHIFT and Key "G")
Change also the MAINMENU while push down and turn the data-entry-knob!
Select track 1-8:
Push down Key KEYNOTE and Key "C,D,E,F,G,A,H,AIS")
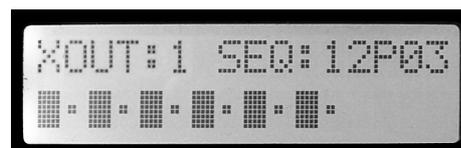
```
XOUT:1  SEQ:12P03
▓·▓·▓·▓·▓·▓·
```

Call SubMenus and set values:

Toggle between Submenu selection and value selection: Push data-entry-knob
Blink Submenu ON: you select the submenu of your choise by turning the data-entryknob
Blinking OFF: you select the parameter of your choise by turning the data-entryknob.

Following values are possible for each x-out:

SEQ-16P00..15U08 - 63 preset + 63 user sequence pattern **>> see page 11+12!**
CLOCK   - Clockdivider value (intern oder extern Clock / Midiclock)
GATE   - Gatetime of the steps
(CLOCK and GATE not available, if SYNC=Arp+Bass Trigger)

Pattern 16P00: mirrored sequence (of the oppsite track)
Pattern 16P01: switch OFF the X-out channel (all steps off).
Pattern 16P03: plays each steps.

Start/Stop sequencer with key PLAYMODE (but for external MIDI clock).

ADVICE! In the menu XOUT, from version 1.08, sequences can also be edited!.
(>> see page 12)

GATE (Not available, if SYNC=Arp+Bass Trigger)
GATE is the time between Note-On and Note-Off.
The GATE time values are adapted in relation to the Clock of the sequence ("adapted").

Following values are allways definitely:
adapted: 1   GATE time is allways the time of 1 tick.
adapted: 8   GATE time is allways the time of value CLOCK of the sequence.

With "adapted:8" you can play notes
without note off (bonded):
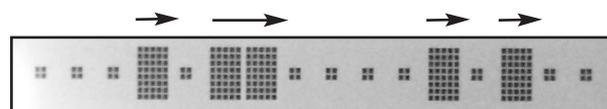
XOUT MIDI NOTEN
Each XOUT channel sends one fix MIDI note:

output	MIDI note	output	MIDI Note
X-1	36	X-5	38
X-2	42	X-6	46
X-3	41	X-7	43
X-4	49	X-8	51

9. MENU MIDI

Call MENU MIDI:
Push down Key SHIFT and Key MIDI ("E")
Change also the MAINMENU while push down and turn the data-entry-knob!

Call SubMenus and set values:

Toggle between Submenu selection and value selection: Push data-entry-knob
Blink Submenu ON: you select the submenu of your choise by turning the data-entryknob
Blinking OFF: you select the parameter of your choise by turning the data-entryknob

1.**TEMPO**
Sets the basic tempo of the arpeggiator of
Tempo 20..255 bpm. If SYNC="extern MidiClock"
then the value is "extern".

```
MIDI          TEMPO
               130
```

2.**SYNC**
Choose one of the following synchronizations:

```
MIDI           SYNC
        intern Clock
```

extern MidiClock
All tracks (ARP, BASS, X-OUT) are triggered with
external MIDI clock.
Start/Stop by external midi start / stop commands.

intern MidiClock
The module is a MIDI master with internal MIDI clock. All tracks (ARP, BASS, X-OUT) are triggered with internal MIDI clock.
Start/Stop by PLAYMODE key.

Chord Trigg 96th
All tracks (ARP, BASS, X-OUT) are triggered together with external clock (96 ticks per bar) via the CHORD TRIGGER input.

ALL Trigger In
Stepsequencer mode: The tracks (ARP, BASS, X-OUT) are triggered independently with external clock via TRIGGER inputs.
- ARP via ARP-Trigger Input
- BASS via BASS-Trigger Input
- X-OUT via CHORD-Trigger Input
- RESET via key PLAYMODE or an impuls via CONVERSE input
  (CONVERSE can only be switched via MIDI here)

ArpTrig XoutMIDI
The tracks ARP and BASS are triggered independently with external clock via TRIGGER inputs.
(see ALL Trigger In).
Only the X-OUTs are triggered by external Midi-Clock.

3. RECV CLOCK

Set the MIDI clock divider on/off
HALF: MIDI-Input-Clock Divider on   **NORMAL**: off

```
MIDI  RECV CLOCK
             normal
```
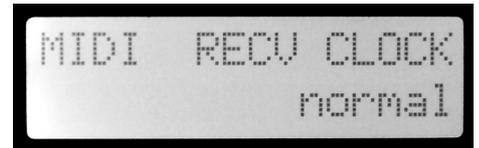
4. SEND CLOCK

Set following values:
OFF: - transmitted clock off
NORMAL: - transmitted clock (normal)
HALF: - transmitted clock with half speed
                 (MIDI clock out divider is on)

```
MIDI  SEND CLOCK
             normal
```
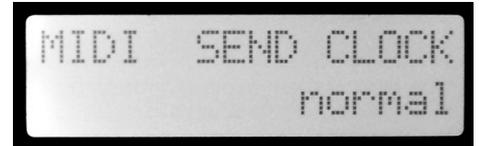
5. RECV CHAN
global MIDI receive channel for Notes and Controller
Range: 1..16

6. TRANSMITTED CHANNEL:

ARP CHAN
Transmitted channel ARP Arpeggio notes
Range: 1..16

BASS CHAN
Transmitted channel BASS Arpeggio notes
Range: 1..16

CHORD CHAN
Transmitted channel Akkord notes
Range: 1..16

X-OUT CHAN
Transmitted channel X-OUT notes
Range: 1..16, off

Table of MIDI- controllers

(Control changes):

MIDI-Controller number	Parameter
1	Detune Chord CV outputs
20	Arp: GLIDE
21	Arp: GATE
22	Arp: NOTEREPEAT
23	Arp: MODE
24	Arp: RANGE
25	Bass: GLIDE
26	Bass: GATE
27	Bass: NOTEREPEAT
28	Bass: MODE
29	Bass: RANGE
30	CONVERSE (value >63=ON)
31	LIST PLACE

Splitzone external MIDI-Keyboard

Splitzone for separatly / simultaneous playing of ARP- and BASS-Arpeggio

Arpeggio-BASS
Received notes (4 Octaves) in range of 12..59 creates BASS-Arpeggio-notes.

Arpeggio-ARP
Received notes (4 Octaves) in range of 36..83 creates ARP-Arpeggio-notes.

CHORD
Received ARP-arpeggio-notes creates also the 4-notes chord.

Advice:
When playing arpeggios using an external MIDI keyboard, HOLD turns off automatically (held internal chord is erased).

10. Appendix

Technical details

Current consumption: ca. +180mA / -20mA
Size: Arpeggiator-2013:   Euro format 3U / 15HP   76 x 128,5 x 50mm
           X-2013:   Euro format 3U / 6HP   30 x 128,5 x 35mm

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

Terms of production

conformity: CE, RoHS, UL

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.

Support

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

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