CYCLUS 3

ANALOG/DIGITAL SEQUENCER

Spectral Audio

Owner's Manual

Introduction.

Dear valued customer,

Thank you for purchasing the Spectral Audio Cyclus 3. We hope that you will enjoy this product for a long time. The Cyclus 3 is developed by musicians for musicians, so we hope that you will find it easy to use. It is although a good idea to skim the entire manual, to get the most out of your Cyclus since it is not like the usual sequencers.

Please remove the protection foil of the display before use.

Cyclus 3 firmware

This Manual describe the Cyclus 3 from software version written in the MIDI implementation chart.

Contents:

How the Cyclus is organized.

The Cyclus is a midi-sequencer. This means, that it will playback midi sequences you have created by recording from an external midi device, by turning the Cyclus knobs, or by making a random note pattern.

It has 30 songs for automatic playback of patterns and track on/off switching in 80 steps and 1 to 32 loops of each step.

It has 107 patterns with each 8 tracks.

Each track has 5 subtracks:

- Note (pitch)
- Length
- Velocity
- Extra note or midi controller value
- Note-off time or midi controller glide time

Each of these subtracks can have a maximum length of 16 steps. The length can be independently set for each of the subtracks (referred to as: ”Last Step”). When a subtrack reaches its last step it will start over from step 1 (it will loop). On the Cyclus (unlike most other sequencers), note pitch, length and velocity value doesn't have to go along. It is possible to f.ex. make a note subtrack that is 7 steps long, a velocity subtrack that is 5 steps long and a length subtrack that is 11 steps long, which will make a sequence that will repeat itself after a lot more than 16 steps.

Since the Cyclus has both a length and a note-off time subtrack, you will only need to use 1 step for 1 note, no matter how long you want the note on/off times to be.

All of the 8 tracks has their own last step settings. If you f.ex. want to make a 3-step bass track, you don't have to record it 6 times, to make it fit to f.ex. a rhythm track. Just record it 1 time, and adjust the length values (if needed) to make it fit.

It is also possible to make 1 track modulate the basic pitch of another track. If we again have a 3-step bass track, and decides that after running maybe 6 times, we want it to transpose 2 notes up, we simply makes another track modulate the bass track, and adjust the source tracks length and pitch, so it fits (see chapter Basic pitch modulation).

Clear Cyclus 3 memory

By sending an empty RAM dump it is possible to clear the Cyclus 3 memory. The Empty RAM dump can be found on our homepage.

Connect the Cyclus

Before you start working with the Cyclus, you will have to make some connections. If you want to record something you play on a keyboard, you will have to connect your midi keyboard to the Cyclus midi-in. If you are using a keyboard or synthesizer with onboard sounds, it is wise to set its local parameter to "off". You don't have to worry about if your keyboard/synthesizer can have different settings for midi in/out since the Cyclus will canalize every midi command it receives to the active tracks midi channel.

You will also have to connect your midi sound sources (synthesizers, samplers, drum machines, keyboards, modules) to the Cyclus midi-out.

Finally you will have to connect the net adaptor between your wall power socket and the Cyclus power input.

When this is done, you can turn your Cyclus on.

Step record from a keyboard

(Additional information on page Func > Rec – Record).

1. Hit the pattern button, select the pattern you want to record and hit the pattern button again.
2. Hit the track button, select the track you want to record, and select the midi channel. You can always audition if its the right midi channel by playing the keyboard, and hear what instrument plays.
3. Turn the func knob (knob 8) and select "Rec".
4. Hit the track button.
5. Now, when you play a note on the keyboard, it will record this note and advance 1 step.
6. Hit the Track, Edit page or Pattern button, when you want to stop recording.

After recording

When you have recorded a track, you can of course play it back, by hitting the run/stop button, so it is lit. Adjust the tempo by hitting the pattern button, and turn the tempo knob (knob 8). Experiment with tweaking the knobs on the different edit pages (see page Edit page), to make your melodic line sound different – Notice that you don't have to record a track before you can do that, just turn a track on, set the midi channel and tweak (exactly like on an analogue sequencer – just more advanced).

You can of course also record/tweak any of the other 8 tracks to make a complete pattern.

If you want to record another track from a keyboard, you will have to stop the Cyclus first.

Recording a song

When you have created one or more patterns, you might want to organize them for automatic playback and automatic track on/off switching. This can be done in a song. Notice that the Cyclus has no tempo adjustment for a song. Every pattern is played back in their own original tempo. This makes it easy, to make different parts of a song run in different tempos.

For details on how to record a song see page SONG EDIT.

Where to find…

Please note that the following Edit pages refer to the Current Edit Track and Current Edit Pattern. If you edit a song, it refers to the Current Song. Below is a short reference where to find them:

Current Edit Track

Press Track button and turn the left knob in the bottom row.

Current Edit Pattern

Press the Pattern button and turn the left knob in the bottom row.

Current Song

Press the Edit Page button and navigate to "SONG". Press the Edit Page button again and turn the left knob in the bottom row.

A word about…

Pattern change

Master for the change or loop of a pattern is always the common last step of Track 1. If the Cyclus 3 reaches this step, it will wait for all notes off the current pattern and change the pattern if it is in song mode and reached the quantity of loops. It will loop if it didn't reach the quantity of loops yet.
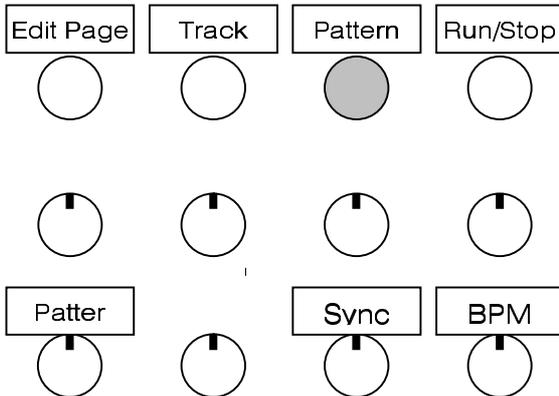
Notation

The Cyclus 3 uses the American notation where C3 is MIDI note 60.

PATTERN PAGE

To enter the pattern page, hit the pattern button once, so the led is lit.

```
Pattern   Sync. BPM
01        Int   120
```

| Edit Page | Track | Pattern | Run/Stop |

Patter   Sync   BPM

Pattern number- With this knob you selects the pattern you want to create/edit/playback.

Sync- <u>Int</u>: The Cyclus runs in the tempo selected with the rate parameter and transmits midi clocks and the real time commands continue and stop. The Cyclus 3 starts and stops also when realtime commands are received.

<u>Ext</u>: The Cyclus receives midi-clock, and runs in sync with the connected external device. In this mode, pressing the run/stop button set the unit back to step one. It must receive run/stop commands from the external device.
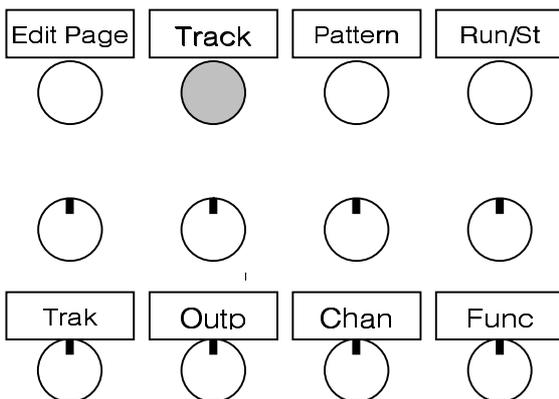
BPM- Adjust the tempo of the pattern (if sync is set to "Int").This setting is remembered within each pattern. In song mode the patterns are also played back in their own original tempo's – no destructive song tempo setting!

TRACK PAGE

To enter the track page, hit the track button once, so it is lit.

```
Trak.Outp.Chan. Func.
01    On    08    Off
```

| Edit Page | Track | Pattern | Run/St |

Trak   Outp   Chan   Func

Trak - Select the track you want to edit/record and monitor on the LEDS.

Outp - The selected track on/off.

**Chan -** The selected tracks midi-channel.

Func – special functions.

How to enter:

Select the function you want, with the func knob, and hit the track button (still lid). If you don't want to enter any functions, select "Off", and hit the track button 1 time (so its no longer lid), and you will be back on the edit page you left, when you entered the track page.

Func > Rndm – Randomizer

```
Note.Xnot.Lngt.Velo
Off   Off    Off    Off
```

Edit Page	Track	Pattern	Run/St

Note	Xnote	Lngt	Velo
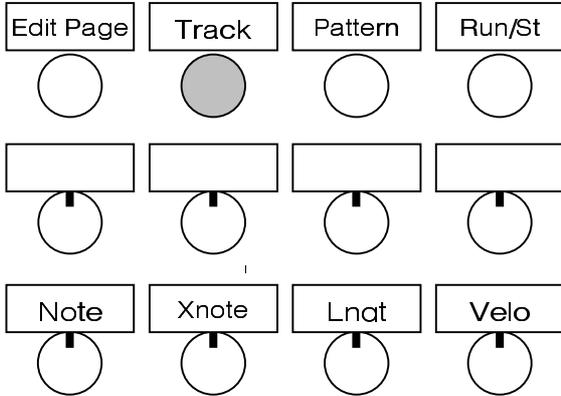
Creates a random sequence.

Select subtracks Note, Ctrl/Xnote (depends on the selected xnt/ctr mode on edit page 3) and velo on/off, and length off/maxlength with the knobs.
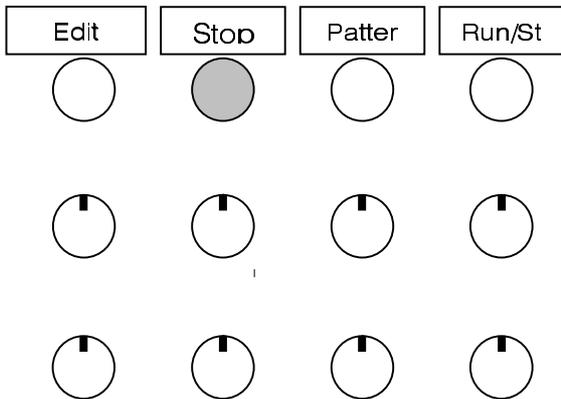
Subtracks that is set to "off" will not be randomized.

Hit the Track knob, so it is no longer lit.

You will now be back in the edit mode, and the subtracks which were not set to "off" are randomized.

Func > Rec – Record

```
Track    Pattern
  04       01
```

Edit	Stop	Patter	Run/St

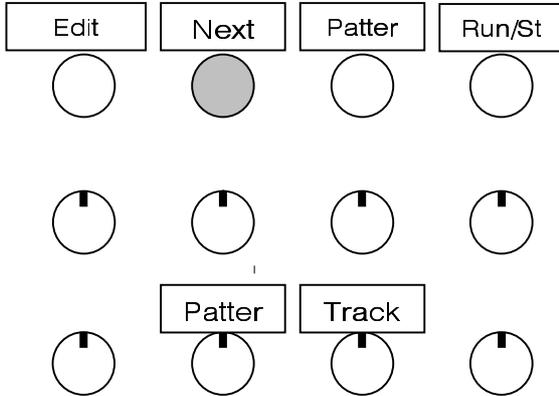Step record a track from an external midi device. Can only be selected if the Cyclus is stopped.

It step records and advance 1 step every time it receives a note-on.

Will record Note and Velocity.

Press Edit Page, Track or Pattern to leave the Record mode.

Func > Copy

```
Copy what?
 Pattern
```

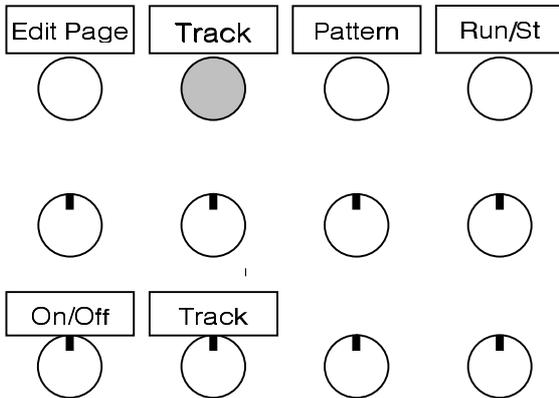| Edit	Next	Patter	Run/St

Patter	Track

Copy a pattern or track to another pattern or track.

Select first if you like to copy a hole Pattern or a Track. Select in next steps source and destination.

Pressing Edit Page or Pattern will leave the Copy mode without coping.
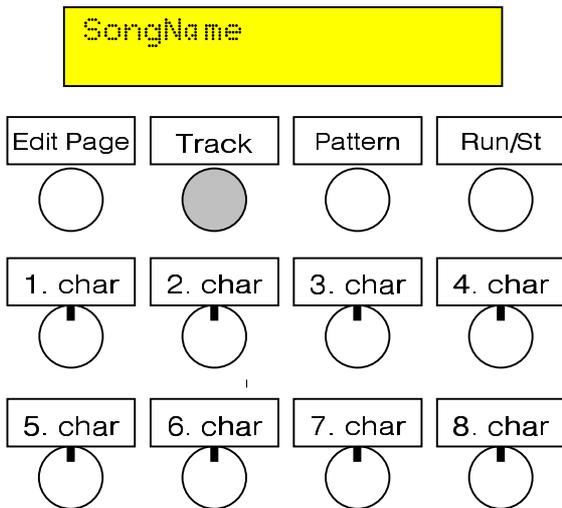
Func > Mod – Basic pitch modulation

```
Mode Destination
 Off   01
```

Edit Page	Track	Pattern	Run/St

On/Off	Track

Select modulation On/Off for the active track, and what track you want as the modulation destination with the knobs. When the source track plays an "C3", the destination track will play back in its original pitch. When the source track plays back notes above or below "C3", the destination track's transpose note will be modified.
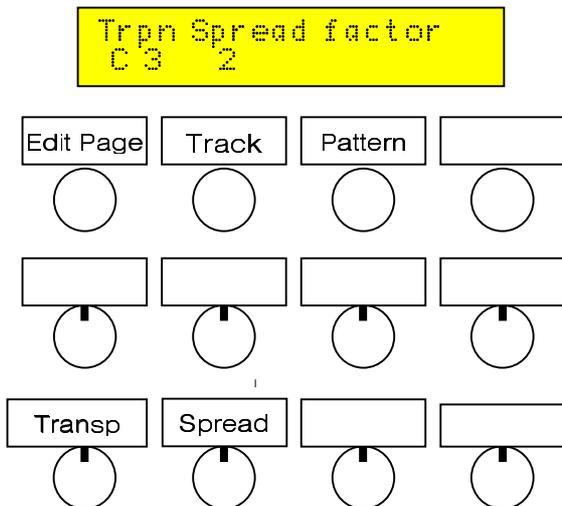
This way more then one sources can modulate the same destination track.

Func > Name – Song name

```
SongName
```

Edit Page | Track | Pattern | Run/St

1. char | 2. char | 3. char | 4. char

5. char | 6. char | 7. char | 8. char

Name your current song. Turn knob 1-8 to select character 1-8.

Func > Sprd – Spread transform

```
Trpn Spread factor
 C3   2
```

Edit Page | Track | Pattern |

Transp | Spread | |

Change the spread value without changing the note values. If you f.ex. have created a great melodic line and you want one of the notes to be 6 halfnotes higher, you select spread transform with a factor of 2.

When you hit the track button, Cyclus recalculates all the notes of the current edit track with the new spread value, based on the transpose note (value) exactly in the middle, and then returns to edit mode.

Pressing Edit Page or Pattern will leave the Spread mode without change.

Func > Dump – Sysex dump.

```
DUMP
     Quit    Send
```

| | Quit | Send | |
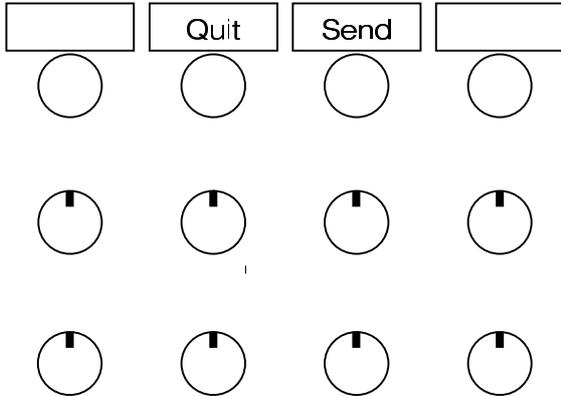
Sysex dump of all pattern and song data to/from an external device (midi-sequencer or pc/mac with midi-interface and sequencer or sysex-dump software) for external storage.

How to transmit:

The Cyclus will transmit about 260 kilobyte of data, so if you want to make the dump to a hardware sequencer, it would be a good idea to first have a look in that sequencers manual to check out if it is possible to dump that amount of sysex-data to it. If you want to dump to a pc, it will be a good idea to use a dedicated midi-interface. Many of the soundcard joystick port midi-interfaces are not able to handle that amount of data in one piece. If you are using Mac, there should be no problems.

When you are sure that the above mentioned is OK, connect the Cyclus midi-out to the receiving device midi-in. Make sure that the receiving device will not filter out sysex events.

Put the receiving device in record mode, and start recording. Hit the send button on the Cyclus.

The Cyclus now transmits all its data. It will take about 1min and 24 Sec. When finished, the Cyclus will return to the last edit page.

Now, stop the receiving device, and save the sysex data bank.

How to receive:

Connect the transmitting device midi-out to the Cyclus midi-in.

Load a Cyclus sysex data bank into the transmitting device.

Start the transmitting device.

How to exit without sending a dump:

Hit the quit (track) button.

Dump Format

RAM Dump (recognized and sent)

F0	Sysex start
00	
20	
6A	ID of Spectral Audio
02	Model no.
00	Kind of Dump
(Bytes of Data)	
F7	Sysex end

Flash Dump (recognized)

F0	Sysex start
00	
20	
6A	ID of Spectral Audio
02	Model no.
01	Kind of Dump
(Bytes of Data)	
F7	Sysex end

Edit pages

The Cyclus 3 is always in edit mode, even when it runs. When there are no light above the edit page, track and pattern push buttons, the display shows an edit page.
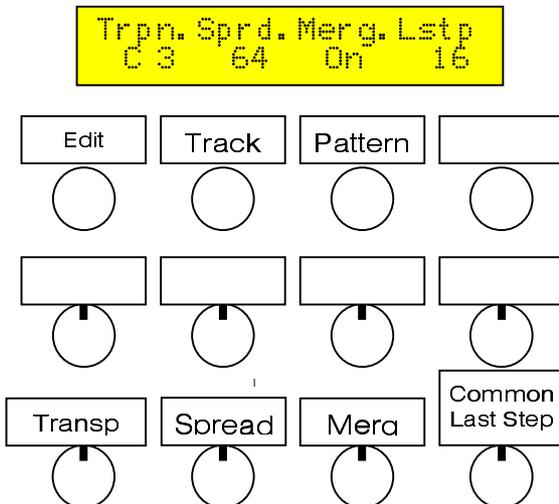
Select an edit page

```
SEQ MAIN
```
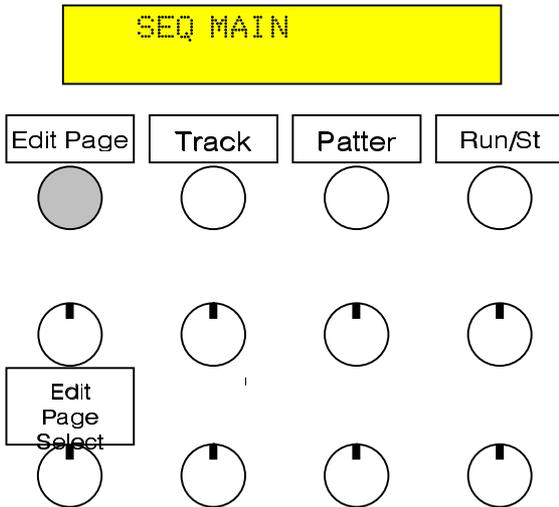
Hit the edit page button 1 time, so it is lit.

Use the Edit Page Select knob, to select the desired edit page.

Hit the edit page button again, so it is no longer lit.

Now the display shows the desired edit page.

Edit page 1 – SEQ MAIN

```
Trpn.Sprd.Merg.Lstp
  C 3   64   On    16
```

Trpn- Track transpose note.
                    +
Sprd- Track note spread.

With these 2 parameters you decide the note range for the selected track.

If f.ex. Trpn is set to C4 and Sprd is set to 16, the note range will be from: C4-8 notes (E3) to: C4+7notes (G4).

Use these knobs to real-time transpose a track and to change the note-spread of your melodic line.

Merg- Merge on/off. When on, data on the midi input are canalized to the active tracks midi channel and then merged with the Cyclus midi data to the midi output. This is a global setting.

Lstp- Common last step. This sets a common last step for the subtracks (explained on the next page).

Edit page 2 – LAST STEP (Loop Points)

```
Note.Xnot.Lngt.Velo.
 16   09   05    14
```

Edit   Track   Patter   Run/St

Note
Last   Xnt/Ctr
Last   Length
Last   Velo
Last

A Cyclus track is split up in 4 subtracks: 1 for step note (pitch) value, 1 for step length (gate time) and 1 for step velocity. The 4th subtrack can after your choose (on edit page 3) be an extra note track or a controller track.

Here you can set the last step (loop point) for each of the subtracks. If you set the last steps to different values, you will get a new and complex track.

Edit page 3 – XNOTE/CTRL

```
Mode.Outp.Ctrl.Tweak
 Xnt   On   01    86
```

Edit Page   Track   Patter   Run/St

Mode   Outpu   Ctrl.   Twea

Mode – Choose if you want a extra note track (xnt), or a MIDI-controller track (ctrl). The length and note-off time for each step are the same as with the note. If you choose Ctrl, you get the possibility to adjust the controller values, and the time it takes to glide from one controller value to another (for each step).

Outp – Xnote/ctrl track on/off. Caution: If the Xnote value (edit page 6 & 7) is set to 0, it won't be sent. With Xnotes, Transponse and Modulation are the same applied as on the regular notes.

Clrl – Controller number.

Tweak – Sends out controller (Ctrl) data with the range 0..127.

Edit page 4 and 5 – NOTE 1-8 and NOTE 9-16

```
C 3   A 3   F 5   D -1
F 2   Bb-1  F-1   A 2
```

Edit Page	Track	Patter	Run/St
Step	Step	Step	Step
Step	Step	Step	Step

On this edit-page, you can view and adjust the note values for step 1-8 of the selected track.

The range of the potentiometer depends on the Spread value on Edit Page 1 and the entry point refers to the middle of the range. This way multible entering the page with the potentiometer full counter-clockwise allows to operate in a higher note range and vice versa.

The same with next Edit page with Notes 9-16.

Edit page 6 and 7(xnt mode – chosen on edit page 3) – XNOTE 1-8 XNOTE 9-16

```
03    12    00    00
121   00    05    07
```

Edit	Track	Patter	Run/St
Step	Step	Step	Step
Step	Step	Step	Step

On these edit-pages, you can view and adjust the xtra-note values for step 1-16, if the selected track is in xnt mode. The values shown, are in half notes above the note tracks pitch. If the value is 00, no xtra-note will sound on that step. The Velocity of the Xnote is the same as on the regular note of the current step.

Edit page 8 and 9(xnt mode – chosen on edit page 3) – NOTE OFF 1-8 and NOTE OFF 9-16

```
03    12      00     00
62    00      05     07
```

Edit	Track	Patter	Run/St
Step	Step	Step	Step
Step	Step	Step	Step

On these edit-pages, you can view and adjust the note-off times for step 1-16, if the selected track is in xnt mode.

Edit page 6 and 7(ctr mode – chosen on edit page 3) – CTRL VALUE 1-8 and CTRL VALUE 9-16

```
03    12      00     00
62    00      05     07
```

Edit	Track	Patter	Run/St
Step	Step	Step	Step
Step	Step	Step	Step

On these edit-pages, you can view and adjust the controller-values of the selected tracks MIDI-controller, chosen on edit page 3, for step 1-16, if the selected track is in ctr mode.

Edit page 8 and 9(ctr mode – chosen on edit page 3) – CTRL GLIDE 1-8 and CTRL GLIDE 9-16

```
03    12    00    00
26    00    05    07
```

Edit	Track	Patter	Run/St
Step	Step	Step	Step
Step	Step	Step	Step

On these edit-pages, you can view and adjust, how long time it shall take to glide from one ctrl value to the next, for step 1-16, if the selected track is in ctr mode.

When the value is 00, it will not glide at all, but shift immediately, when it reaches the next step.

When the value is at maximum, it will, at a low speed, glide to the next steps value, before it reaches the next step.

At the values in between, the glide effect will be high at low values, and slow at high values.

Edit page 10 and 11 – LENGTH 1-8 and LENGTH 9-16

```
03    12    02    02
62    02    05    07
```

Edit	Track	Patter	Run/St
Step	Step	Step	Step
Step	Step	Step	Step

On these edit-pages, you can view and adjust the note-on times for step 1-16, of the selected track.

The values are shown in 1/32 steps.

Edit page 12 and 13 – VELO 1-8 and VELO 9-16

```
127   86   108   72
 63   92   127   87
```

Edit	Track	Patter	Run/St
○	○	○	○

Step	Step	Step	Step
○	○	○	○

Step	Step	Step	Step
○	○	○	○

On these edit-pages, you can view and adjust the velocity values for step 1-16, of the selected track.

Edit page 14 – TRACK ON/OFF.

```
1█    2█    3_    4_
5     6     7     8
```

Edit	Track	Patter	Run/St
○	○	○	○

Track	Track	Track	Track
○	○	○	○

Track	Track	Track	Track
○	○	○	○

On this edit-page, you can view and select, which tracks that are playing, and which tracks that are muted. A █ shows that the track is playing, and a _ shows that the track is muted.

Edit page 15 – SONG EDIT.

```
step Ptrn Loop Plays
 01   01   02    01
```

Edit   Track   Patter   Run/St

Step   Patter   Loop

Step – Select song start step, and use it for song editing. When you selects a step, it shows the pattern number assigned to that step. If "end" is displayed, no pattern is assigned to the step. The song will stop playback or loop, when the first end mark arrives. Remember to set this to the step, where you want the song to start, when you have finished your editing.

Ptrn – The pattern number assigned to the selected step. Change and assign patterns with the pattern turning knob. When you change/assign a pattern, Cyclus 3 also saves the track on/off settings for the pattern at that moment. If you want a step to be the end step, turn the pattern knob all the way right, and the display will show "end".

Loop – Define how many times the choosen pattern shall repeat.

Play – Shows what step it is currently playing.

Edit page 16 – SONG.

```
SONG      Mode Plays
01 Songname  1tm    01
```

Edit   Track   Patter   Run/St

Song No.   Mode

SONG/Songno. – Choose the song number, you want to play back / record. If the song is named, this name will show on the display.

Mode/Play

Off: will work with and repeat the current Pattern.

1tm: will play the song one time.

Loop: will repeat the song until stop is pressed.

Comparison to a software sequencer:

The number after the track number indicates the MIDI channel. The patterns in italic indicates a repeat (loop).

Overview Func

Rndm	
Rec	
Copy	
Mod	
Name	
Sprd	
Dump	Quit / Send

Overview Edit Pages

		Xnote	Contr.
1	Seq Main Track		
2	Last Step		
3	Xnote / Contr.		
4	Note 1-8		
5	Note 9-16		
6		Xnote 1-8	Contr. Value 1-8
7		Xnote 9-16	Contr. Value 9-16
8		Note Off 1-8	Contr. Glide 1-8
9		Note Off 9-16	Contr. Glide 9-16
10	Length 1-8		
11	Length 9-16		
12	Velo 1-8		
13	Velo 9-16		
14	Track on/off		
15	Song Edit		
16	Song		

Pattern Pages

Flash (Firmware) Update

For this, just send the new firmware (it has binary format) to the Cyclus 3. It does have 32775 Bytes. With some Sysex sending software it is needed to configure some delays between the sysex out buffers. It seems not all MIDI interface are able to handle that amount of data. However the Cyclus 3 is, it does not need any delay.

If the quantity of received bytes are not 32775, the Cyclus 3 will write "Count of Char wrong" for about one second after receiving F7h. After successful reception of the data, it will write "Writing Flash". Writing of the Flash will take about 31 seconds.

Test setup of test for correct sending of 32775 Bytes of Sysex Data

Because some MIDI interfaces do have problems to send the correct amount of data, it is a good idea to test it in the following way:

| Sending PC | MIDI Out | MIDI In | Receiving PC |
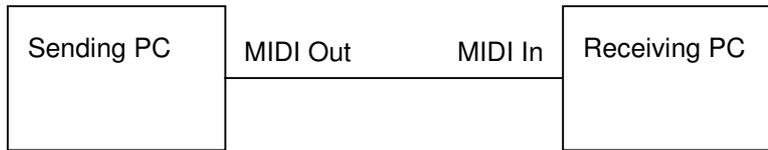
With a MIDI utility software it is possible to count the amount of receiving bytes.

Back-up battery

The Cyclus is fitted with an internal back-up battery. This means, that it will hold all the song and pattern data when you shut it off. It also means, that you will have to get the battery replaced after about 10 years. Please see chapter technical details for battery type. Replace battery when the Cyclus 3 is powered on. This way you won't lose memory.

Power supply unit

Please do only use the enclosed power supply unit. Using another one might damage the Cyclus 3. See chapter technical details if you are unsure about your power supply unit.

Technical details

Battery type:	CR2032
Power supply unit output:	6VAC..9VAC, 450mA..550mA or 7VDC..10VDC, 450mA..550mA
Size:	154mm x 132mm x 65mm
Weight w/o ears:	625g
Shipping weight w. box:	2.09kg

MIDI Implementation Chart

Date: 11.5.08

Model: **Spectral Audio Cyclus 3**   Version: 1.07

Function		Transmitted	Recognized	Remarks
Basic	Channel	1-16	1-16	memorized
Default	Channel	1	1	
Mode	Default	x	x	no modes supported
	Messages	x	x	
	Altered	x	x	
Note	Number	0-127	0-127	
	True Voice	0-127	0-127	
Velocity	Note On	0-127	0-127	
	Note Off	0-127	0-127	
After	Key's	x	x	
Touch	Ch's	x	x	
Pitch Bender		o	o	
Control		0-127	0-127	
Change				
Prog		x	x	
Change	True #	x	x	
System Exclusive		o	o	262151 Bytes RAM dump 32775 Bytes Flash dump
System	: Song Pos	x	x	
Common	: Song Sel	x	x	
	: Tune	x	x	
System	: Clock	o	o	
Real Time	: Commands	o	o	
Aux	: Local On/Off	x	x	
Mes-	: All Notes Off	x	o	
sages	: Active Sense	x	x	
	: Reset	x	o	
Notes		./.	./.	

Mode 1: Omni On, Poly   Mode 2: Omni On, Mono   o : Yes
Mode 3: Omni Off, Poly   Mode 4: Omni Off, Mono   x : No