The Controller Editors

ZEIT supports two MIDI Continuous Controller Streams per sequence. The streams, labelled **Controller One** and **Controller Two**, are functionally identical, as are the controller menus.

MIDI Continuous Controller messages are typically used to send *expression* information. For instance, *ZEIT* can send a series of incrementing MIDI Volume commands and the receiving instrument should respond by raising its output level by a corresponding amount. Equally, Modulation Wheel messages can be used to dynamically vary the modulation depth in a synthesiser patch giving you a very expressive means of controlling your performance.

Page 1: Controller Type

```
10 CC01 Setup     Seq 01
Type>07  Volume(C)
```

The **Controller Type** defines the actions of the Continuous Controller message. The MIDI Manufacturer's Association (MMA) has defined a number of preset types, which *ZEIT* supports. For instance, in the above example, the controller type is **07, Coarse MIDI Volume**. Messages sent by this controller will affect the output volume of any synthesiser set to receive on the MIDI Channel.

To select a new Controller Type, move the cursor to the **Type** field using the *Enter* pushbutton. Use the Data Wheel to scroll through the available types. If a controller type is not recognised as one of the presets defined by the MMA, then *ZEIT* will display the word '*Unreserved'*.

Note that the Controller Type is not actually changed until you press the *Select* pushbutton. This is because changing the MIDI Controller Type can have serious and occasionally unpredictable effects on receiving instruments.

Page 2: Controller Modulation

```
11 CC01 Modulate  Seq 01
Dir>Pend Dep 099  Act On
```

This page sets three parameters for the **Controller Stream**. The **Direction** setting can be any of the usual settings i.e. Forwards, Backwards, Random etc.
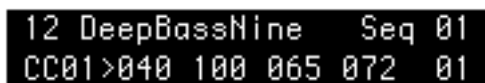
The **Depth** parameter sets the amount of modulation applied to the stream by the Low Frequency Oscillator and Sweep Generator associated with the sequence.

Hint: Remember, for any effect to be heard, the Master Depth parameter on the Low Frequency Oscillator must be greater than zero.

The **Act** parameter is short for **Active** and functions as a basic On/Off switch for the controller stream. When set to 'On' the Controller generates data. When set to 'Off' the stream does not generate any data.

Note that the Controller Streams generate data by default. Consequently, if a MIDI data link is getting a bit congested then we recommend that you switch any unused Controller Streams to 'Off'. This will significantly reduce the amount of data generated by the sequencer.
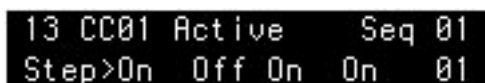
Page 3: Controller Values

```
12 DeepBassNine   Seq 01
CC01>040 100 065 072  01
```

The **Controller Values** page is called whenever one of the Controller Knobs on the front panel is changed. You can also change these values using the Data Wheel. Turn the Data Wheel clockwise to increase the value and anti-clockwise to decrease the value. The maximum value you can set is 127 and the minimum is zero. These restrictions are enforced by the MIDI protocol itself rather than by *ZEIT*.

You can change any of the values in the sequence whether the stream is active or not. You can also change more than one knob at once though *ZEIT* will only display the current knob to prevent the screen jittering between knobs.

The output from the Low Frequency Oscillator and/or the Sweep Generator is added arithmetically to the values set in this page.

Page 4: Active Steps

```
13 CC01 Active    Seq 01
Step>On  Off On  On   01
```

As with the Notes Stream, Controller Events can be both **active** and **skipped**. The status of a step is set using the **Step Active** push buttons.

The behaviour of **active** and **muted** controller steps requires further illustration.

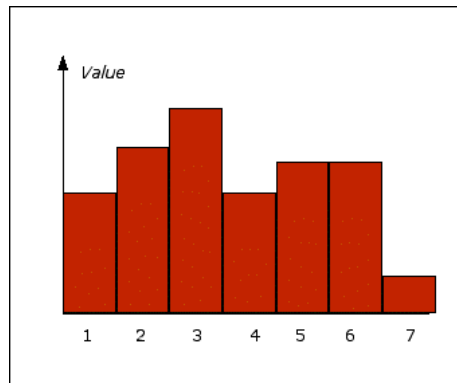In fig. 1 all of the steps are **active.**

Fig. 1 *All steps active…*

However, in fig. 2 step 5 is **muted** and the effect is to make step 4 act for an additional step.
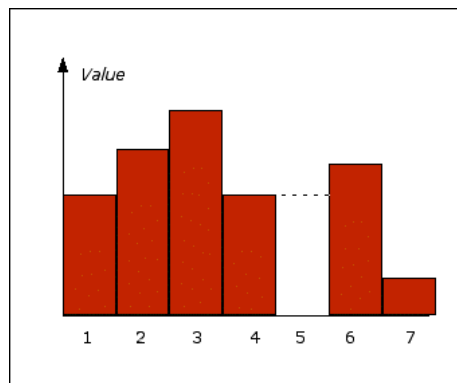

Fig. 2 *Step 5 has been muted and has no effect*

Page 5: Skipped Steps

Skipped Steps operate in the same way as with Note Events. When a step is set to *skipped*, it is essentially ignored by the sequencer.
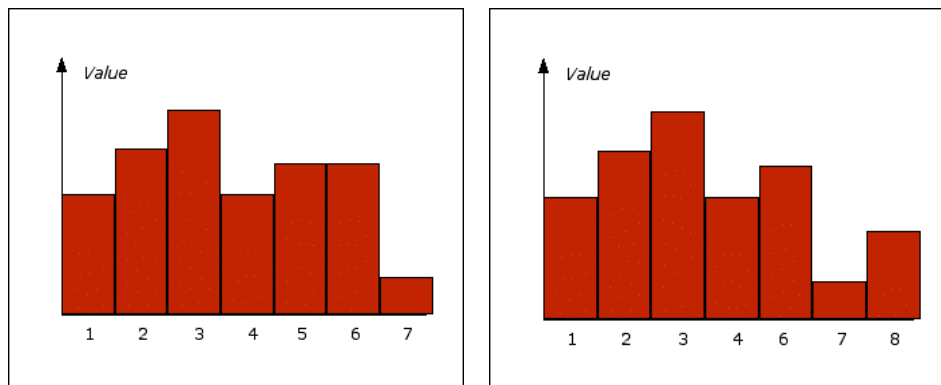

Fig. 3

As in the previous example, when step 5 is **skipped** then effect is to bring step 6 and all of the remaining steps in the sequence forward by one step.

Page 6: End Stops

```
15 CC01 Endstops  Seq 01
Start>04  End 16      01
```

This page is used to set the **start** and **end steps** for the Controller stream. You can set these parameters either from the Controller Edit Menu or from the front panel when in Shift Mode. As described in the Note Editor Section, we recommend that you practice setting the start and end steps from the front panel before you attempt to use the sequencer in a live situation.

The minimum step number you can set is 01 and the maximum is 16. The start step is always one less than the end step.