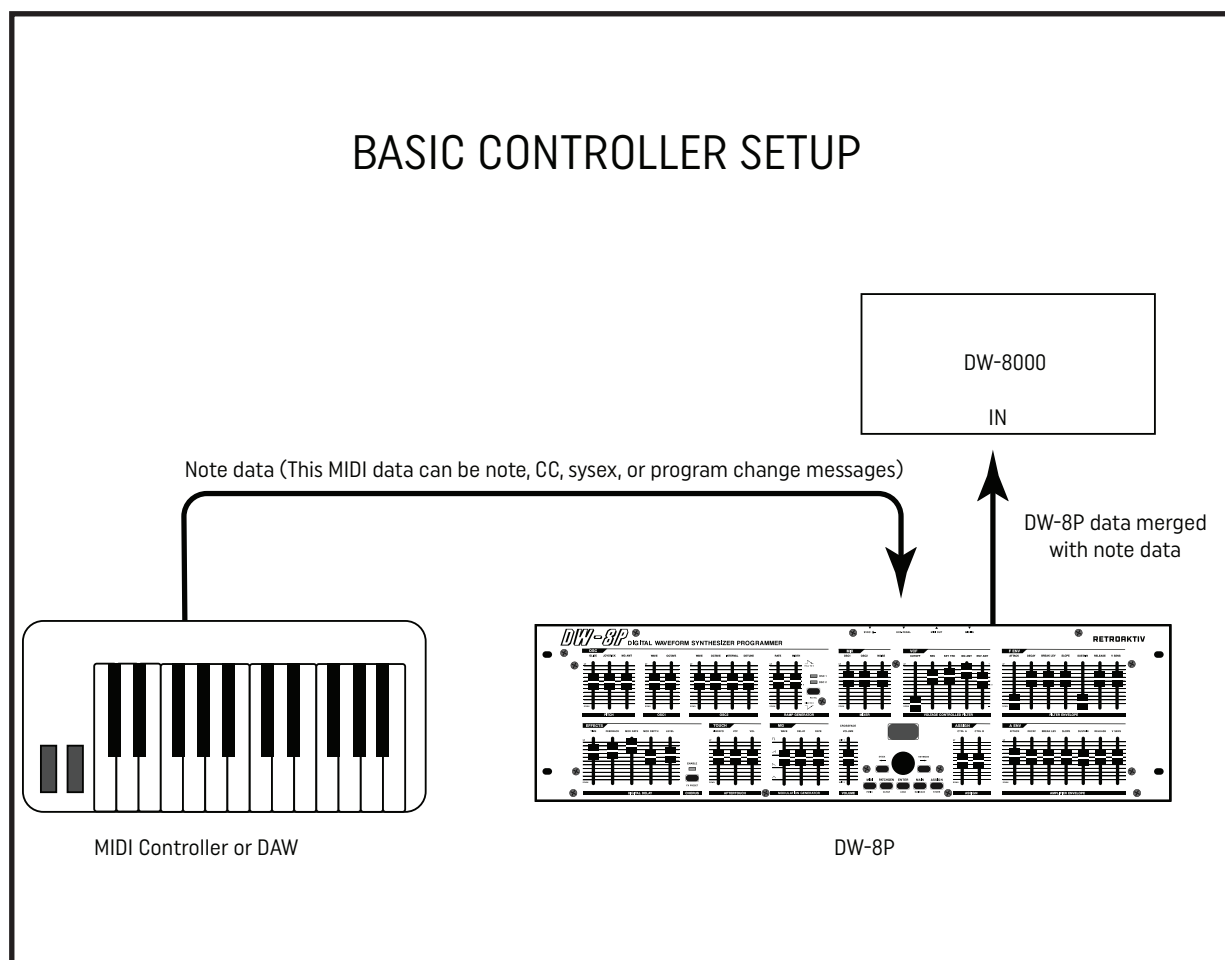# Connecting Retroaktiv Controllers

Control a synth using midi keyboard and Retroaktiv controller:

This is the most basic setup configuration. In this configuration type, MIDI OUT from the master controller keyboard is sent to MIDI IN of the Retroaktiv controller. The data from the master keyboard is then merged with the outgoing controller data, which is then sent to the synth. If this data is to be recorded with a DAW, then the THRU from the synth should be routed to the DAW in.

BASIC CONTROLLER SETUP

DW-8000

IN

Note data (This MIDI data can be note, CC, sysex, or program change messages)

DW-8P data merged with note data

DW-8P DIGITAL WAVEFORM SYNTHESIZER PROGRAMMER   RETROAKTIV

MIDI Controller or DAW

DW-8P

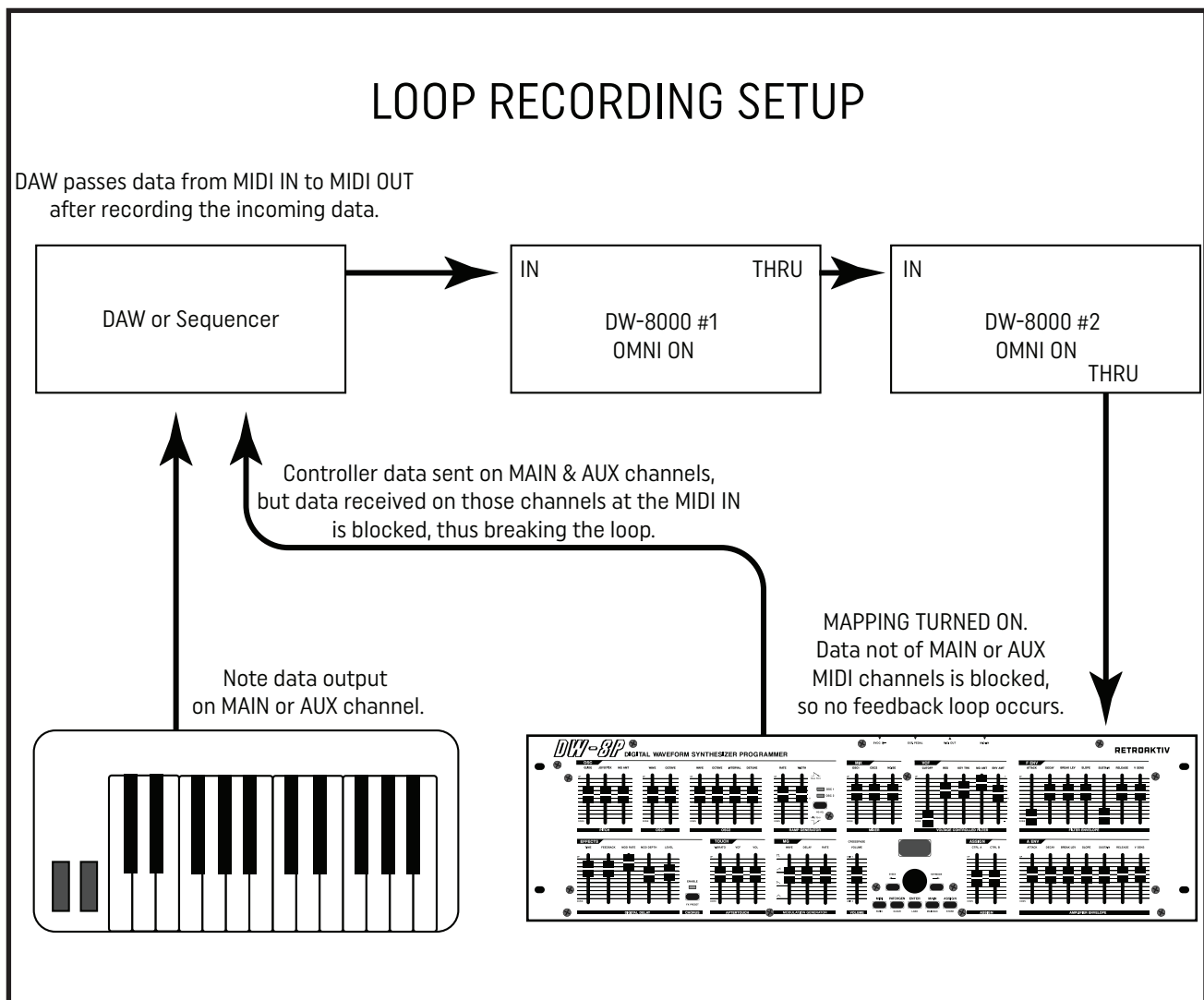## Loop Recording with a DAW and Retroaktiv controller.

If you are recording CC data and playing it back into the Retroaktiv controller for translation, then a feedback loop will occur unless the following steps are taken:

Turn CC translate ON in the MIDI MENU of the Retroaktiv controller. This will convert incoming CCs into sysex messages for the synth.
When sending notes back into the Retroaktiv controller, a feedback loop will occur. To stop this from happening, use the MIDI MAP mode in the MIDI MENU of the Retroaktiv controller. Here's how this works:

The Retroaktiv controllers only pass data received at the MIDI IN port if the data is on either the MAIN or AUX MIDI channel (Setting in MIDI MENU of Retroaktiv controller). All other channel data is filtered out by the controller. This is because even though the controller appears to act as a THRU/MERGE, it is actually parsing every byte of data that comes in to see if it needs to do something with it, like translate it or filter it. This leads to undesirable latency if lots of extraneous channel data is being parsed by the controller.

When MAP function is turned on in the controller, incoming data on the MAIN or AUX channels can be mapped to a different channel (One that is not either the main or the aux). Note that when MAP is turned on, the synth itself should be set to OMNI ON, so it will receive note data on all channels. For example, if the MAIN channel is CH 1 and MAIN MAP is mapping that channel to channel 2, a note that comes in on channel 1 will exit the controller on channel 2. This then triggers the note on the synth, passes THRU the synth, and into the DAW, where the note data is recorded on channel 2, which is then passed back the the controller. However since the controller is blocking channel 2, that data does not get passed through the loop a second time, effectively breaking the feedback loop. Using this method, real time loop recording is possible. Note that if the MAP function is not used, then an instant feedback loop will occur.

LOOP RECORDING SETUP

DAW passes data from MIDI IN to MIDI OUT
    after recording the incoming data.

DAW or Sequencer	→	IN THRU	→	IN
		DW-8000 #1		DW-8000 #2
		OMNI ON		OMNI ON
				THRU

Controller data sent on MAIN & AUX channels,
but data received on those channels at the MIDI IN
is blocked, thus breaking the loop.

MAPPING TURNED ON.
Data not of MAIN or AUX
MIDI channels is blocked,
so no feedback loop occurs.

Note data output
on MAIN or AUX channel.

DW-8P DIGITAL WAVEFORM SYNTHESIZER PROGRAMMER   RETROAKTIV

An alternate method of loop recording is shown below. This method bypasses the controller's merging function, and eliminates any latency from the controller. The latency from the controller is only noticeable if you are sending large amounts of CC, SYSEX, and NOTE data at once. Using this method will allow the fastest note and data processing time. Be sure to either turn FILTER on or use the MAP function, so a feedback loop is not introduced.
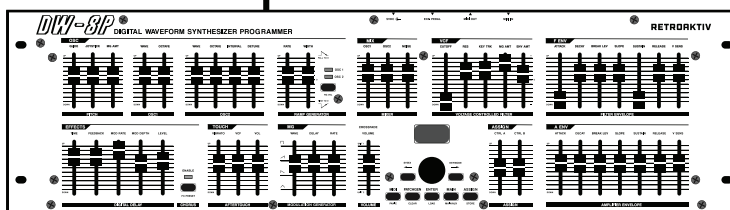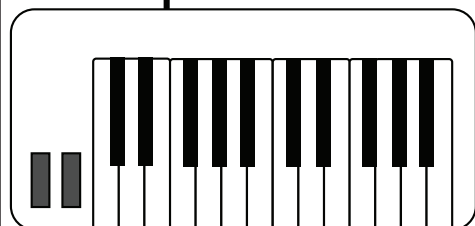
LOOPED RECORDING SETUP #2

Merger eliminates any latency from
the programmer. Useful if sending heavy
amounts of note and controller data.

| MIDI Merger | IN   DAW   OUT | IN   DW-8000

THRU |

DAW passes data to synth.

MAPPING TURNED ON, or
NOTE DATA FILTER ON.
Data not on MAIN or AUX
MIDI channels is blocked,
so no feedback loop occurs.

Note data output
on MAIN or AUX channel.

Bidirectional Communication

This type of setup is primarily used for either downloading a bank of sounds from the synth to the controller's memory card, or for downloading the current sound from the synth, which is mostly used for the DW-6000, which needs to do this, as it uses shared sysex IDs. This setup type is not typically used otherwise, as it invites a feedback loop. This method of connection is generally only used for special cases.

BI-DIRECTIONAL MIDI SETUP

DW-6000

OMNI OFF

IN   OUT

MAPPING TURNED ON.
Data not of MAIN or AUX
MIDI channels is blocked,
so no feedback loop occurs.