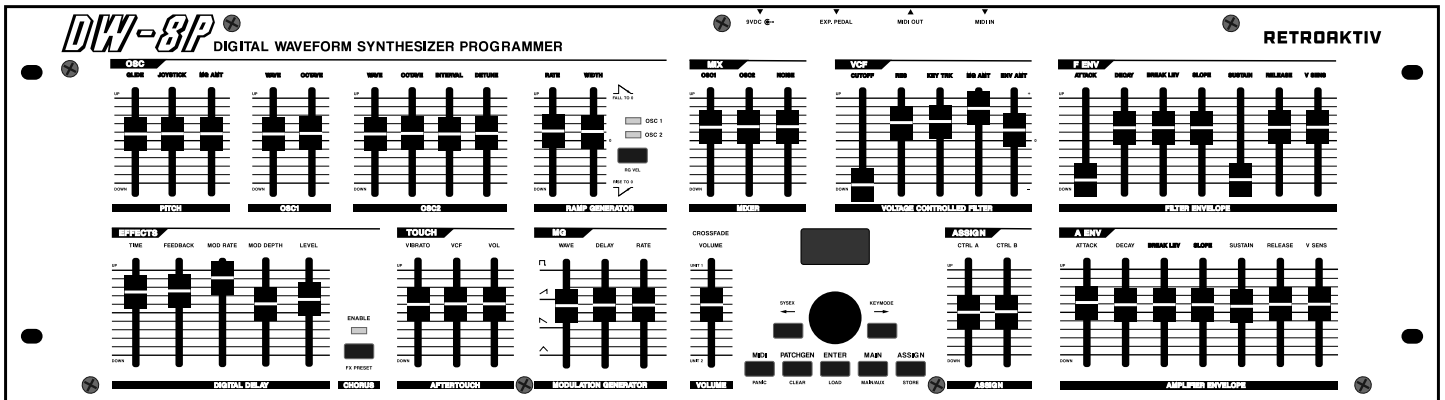


RETROAKTIV DW-8P

DIGITAL WAVEFORM SYNTHESIZER PROGRAMMER USER GUIDE AND REFERENCE



FEATURES

Real time control of all tone parameters

The DW-8P is a full-featured MIDI controller for programming Korg EX-8000, DW-8000, and DW-6000 synthesizers. DW-8P can control 2 synthesizers at once, allowing fast switching between synths, and ability to smoothly crossfade and layer the two synths.

Flexible MIDI matrix for controlling multiple parameters simultaneously

Three assignable control matrixes allow users to control up to 5 parameters simultaneously, using the CTRL A and B sliders, an expression pedal, or incoming mod wheel, aftertouch and breath controller messages. Give complex animation to your sounds by sweeping a filter down while increasing the DCO LFO modulation. The possibilities are endless!

CC mode transmits and decodes CC messages for easy DAW integration

In CC mode, the DW-8P will transmit SYSEX to the synth whenever a slider is moved, and it will simultaneously send a MIDI CC message that can be recorded with a DAW. Playing the recorded CC back into the DW-8P will translate the data back into SYSEX and transmit to the synth.

Random tone generator creates beautiful, musical tones at the press of a button

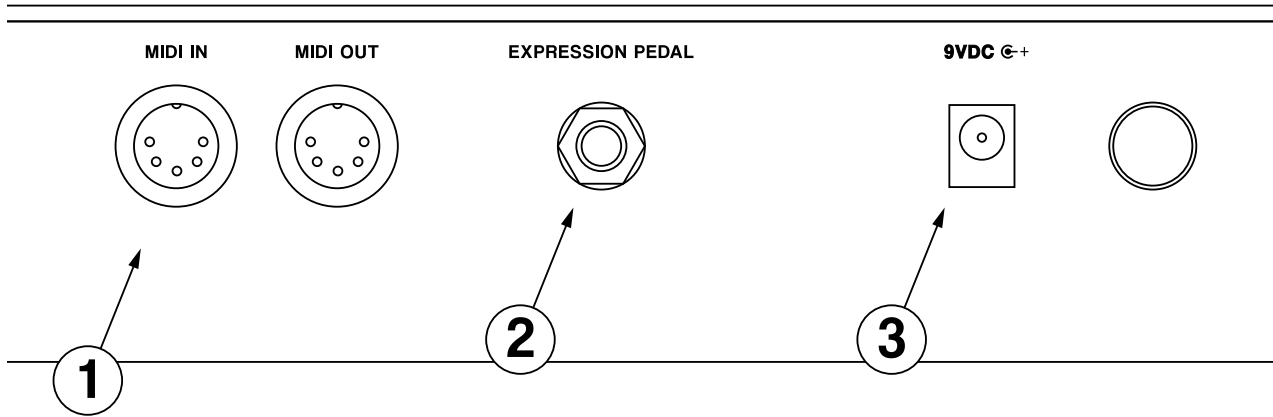
The RANDOM TONE GENERATOR on the DW-8P is a powerful tone creation tool featuring the ability to randomize all of the tone parameters in a musical way, or to generate completely random tones. Using the category select, generate pads, electric piano, analog, choir, percussion, bass, bells/metal, digital synths and more. Each section of the synth can be "masked" so the randomizer will not change that section when it generates a new tone. Like the filter set where it is? Mask the VCF and it won't get changed!

Route incoming mod wheel and aftertouch messages to any 5 tone parameters each

Create amazingly expressive sounds using an external midi controller by using the on-board assignable controls to respond to incoming mod wheel and aftertouch messages. Mod wheel and aftertouch can be routed to up to 5 tone parameters each.

Case is angled for tabletop use and can be rack-mounted

The DW-8P has 4 adjustable rubber feet for firmly sitting on a desk or table without slipping. The case is angled forward for ergonomic editing. A recessed compartment for the jacks and power cable makes it easy to mount the unit in a rack and easily access the jacks and power button.



1) MIDI In & MIDI Out Jacks

Allows for MIDI connections to and from the controller. Incoming MIDI messages are received from a controller keyboard and are read and relayed to the synthesizer via the MIDI OUT port. Controller data from the DW-8P is merged with incoming MIDI data and sent to the synthesizer.

2) Expression Pedal Jack

For connection of a variable expression pedal for use with the ASSIGN P function on the DW-8P. Roland, Moog, and Kurzweil expression pedals have been found to work well with the DW-8P.

3) DC Power Jack & Switch

For use with a 9V-12V DC power adapter with the positive connection on the center pin. The DW-8P consumes 35mA.

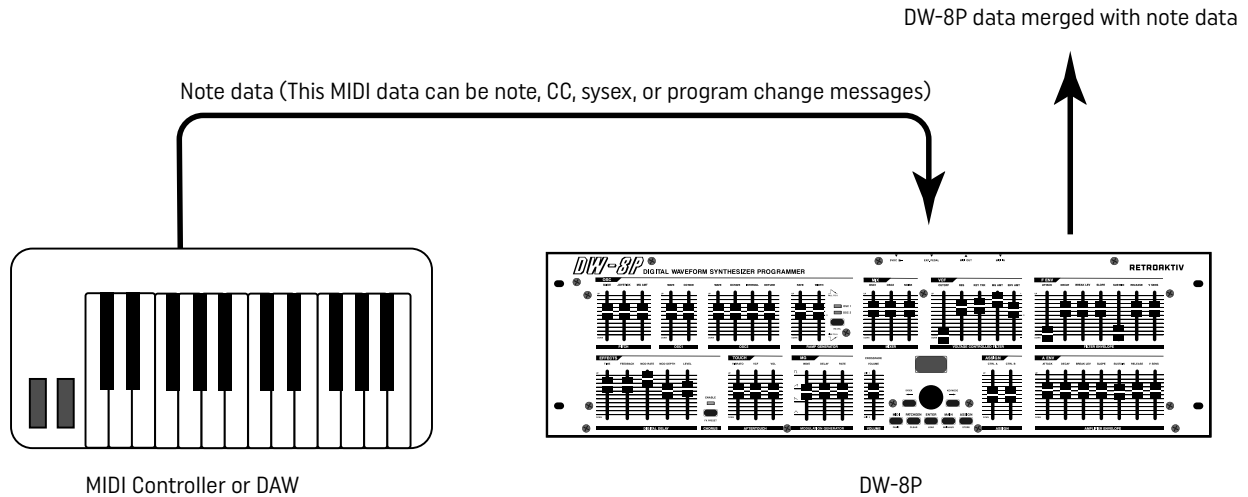
Getting Started

To begin using the DW-8P connect the DC power adapter to the DC power jack and use the ON/OFF button in the rear of the unit to turn on. When power is applied, the DW-8P splash logo will be displayed on the OLED display. The version of the operating system will also be displayed on this screen.



BASIC CONNECTIONS

DW-8P has a "soft MIDI THRU", meaning that it will pass any data seen at the MIDI IN to the MIDI OUT (With exceptions. See section about MIDI MAP) To communicate with the synthesizer plug the MIDI OUT of the DW-8P into the MIDI IN of the synth. This will allow the DW-8P to transmit controller data to the synthesizer. If using an external MIDI controller, plug the MIDI OUT of the external controller into the MIDI IN of the DW-8P. This will merge the output of the external controller with the data from the DW-8P, eliminating the need for a MIDI MERGE when using a controller keyboard and the DW-8P to play the synth.



If you're sending dense streams of controller data (using a 5 layer ASSIGN, sending to 2 DW/EXs, for example) consider upgrading to a dedicated hardware merger to merge your keyboard data with the DW-8P output stream. The DW-8P's hardware buffers are only so large, and you can overwhelm it if you're sending in lots of data. Don't forget, the DW-8P needs to read and parse every byte of MIDI data it receives, so sending the DW-8P lots of unnecessary data (Like data from MIDI channels other than the one being used to control the DW/EX) will fill the queue faster.

Depending on what the setup is, the ideal DW-8P connection will vary. A device that can filter MIDI data by type (Note, CC, pitch wheel, etc) is very useful, as is the ability to split and merge data. A complex setup where the DW-8P is integrated with a DAW is going to require more planning than a simple MIDI IN/OUT setup.

USING DW-8P WITH DW-6000

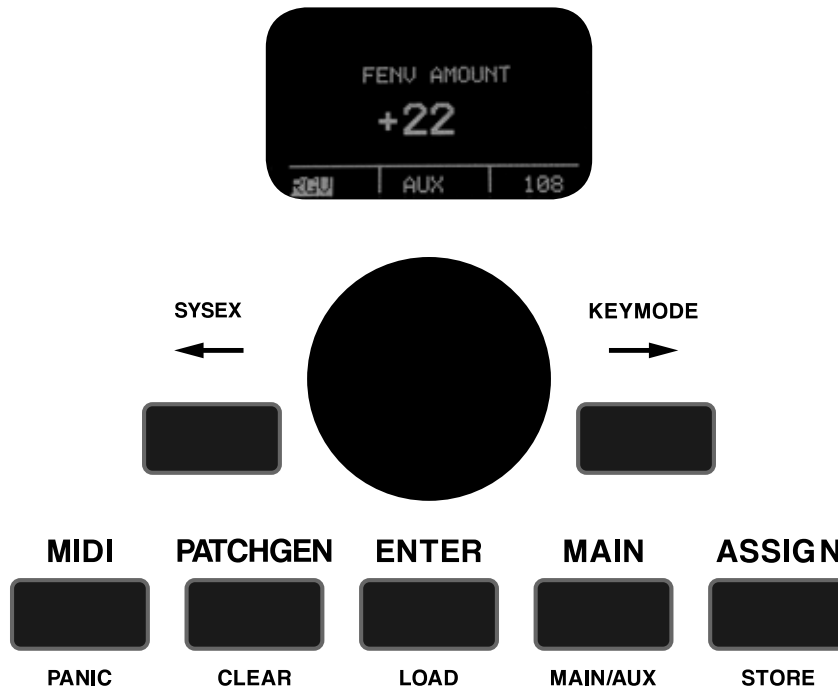
If using the DW-8P to program a DW-6000, there are some sysex implementation notes that users must be aware of. The EX and DW8000 both have one parameter offset ID per parameter. This means that to change an individual tone parameter, the DW-8P needs to send a handshake that lists the offset ID ("This is the parameter being changed") and the new parameter value. The DW-6000 however, uses shared parameter IDs (For a list of the shared parameter IDs, refer to pages 46 and 47 of the DW-6000 user's manual), which means that changing a single tone parameter will result in 2 tone parameters (The parameters that share the ID) being changed on the DW-6000, which is annoying. To deal with this problem, the DW-8P can download the current DW-6000 sound (The one currently being heard from the synth), and can then change only a single parameter. To use this feature, the MIDI OUT of the DW-6000 needs to be connected to the MIDI IN of the DW-8P, and the MIDI OUT of the DW-8P should be connected to the MIDI IN of the DW-6000. When using this configuration, pressing SHIFT+LEFT will send the DW-6000 a request for the current sound. The DW-6000 will then send the DW-8P the current sound, and a success message will be displayed on the DW-8P. Now that the

DW-8P knows the contents of the shared parameter IDs, it can send data bytes that will only change one of the parameters on the shared ID. Use SHIFT+LEFT to download the program from the DW-6000 whenever a new program is selected.

If creating a program from scratch on the DW-8P, it is recommended that the MANUAL, SCRATCH PATCH, or PATCHGEN function be used as a starting point, so that the DW-8P always knows what sound the DW-6000 is playing. The shared parameter ID issue is the reason that most universal programmers do a poor job of controlling the DW6000.

MENU NAVIGATION

The DW-8P will start at the MAIN menu screen when booted up. The MAIN screen displays the current active parameter (the parameter currently being edited) and which synth (MAIN, AUX, or BOTH) is being edited. Menus can be selected by using the buttons to the left of the display. On menu pages that feature the cursor, move the cursor using the LEFT and RIGHT buttons. To change a parameter value in a menu, use the black rotary encoder dial. Push the encoder in to use the SHIFT function. The SHIFT function is used to toggle a button's second function. For example, holding SHIFT and pressing the RIGHT button will toggle the KEY ASSIGN (POLY1, POLY2, UNISON 1 and UNISON 2) on the synth.



DW-8P has several different menu options. To access a menu, use the navigation buttons on the front panel. The LEFT and RIGHT buttons are used to navigate the cursor (current menu parameter is highlighted) when in a menu other than the MAIN menu.

Use these buttons to access the following menus and functions.

ENCODER (SHIFT) - Use the ENCODER to change the value of any highlighted menu value. Pressing the ENCODER = SHIFT.

MIDI - Display MIDI SETTINGS

PATCHGEN - Opens random patch generator, manual, and scratch patch generator.

MAIN - Returns to MAIN screen and selects the program menu for each connected DW/EX synth.

ENTER - The ENTER button is a general purpose button that has different functions, depending on the page that you're currently in. If on the MAIN screen, use ENTER to check the CC assignment of any slider on the DW-8P. (Excluding MASTER VOLUME, CTRL A, CTRL B)

LEFT & RIGHT BUTTONS - Use these to navigate the cursor position on the MENU pages.

ASSIGN - Opens the assignable control matrix

RAMPGEN - Use this button to select which oscillator(s) are affected by the ramp generator. The RAMP GENERATOR function on the synth can now be controlled using velocity, using a new feature added to the DW-8P.


CHORUS - If the DW-8P is controlling a DW-6000, this button functions as an ON/OFF toggle for the CHORUS function. If using an EX-8000 or DW-8000, this button will activate the currently selected internal effect (Stored in the DW-8P).


When holding a button down on the DW-8P, the button will repeat after a certain amount of time has elapsed. This button repeat rate can be set and stored in the MIDI MENU under the BUTTON REPEAT setting. Pressing a button rapidly will retrigger the button each time it is pressed. The button repeat rate only affects what happens when a button is held down.

Many buttons on the DW-8P have a dual function. This dual function is usually indicated beneath the button and will be labeled in blue text. On the following pages is a chart showing what the button double functions are, and which menus the double functions are active in.

BUTTON COMBINATION CHART

In any menu:

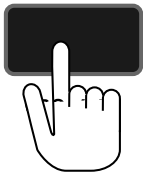
SHIFT +  **MAIN**
 SHIFT+MAIN - Switches between MAIN and AUX synth channels

SHIFT +  **MIDI**
 SHIFT+MIDI - MIDI Panic (All notes & controllers off)

 **OSC**

 **OSC**

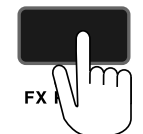
SHIFT + RG VEL - Opens RAMP GENERATOR velocity control menu. Pressing this when in the velocity control menu will enable velocity control. Pressing again will turn velocity control off.



ENABLE




SHIFT+FX PRESET - Opens FX preset menu (For use with EX-8000 and DW-8000 only)



CHORUS

In MAIN menu:

SHIFT +  **SYSEX**
 SHIFT+LEFT - Request current sound from DW/EX synth. INVALID SYSEX message will be displayed if no answer is received from the synth, or if the next incoming MIDI message is not hex F0.

MAIN

SHIFT +



SHIFT+RIGHT - Toggles KEY MODE on the DW/EX. (POLY1, UNSN 1, UNSN 2, POLY 2)

In PATCH GENERATOR menu:

ENTER

SHIFT +



SHIFT+ENTER This will generate a separate patch on the MAIN and AUX layers.

PATCHGEN

SHIFT +



SHIFT+PATCHGEN - This will alternate between masking all patchgen parameters and unmasking all patchgen parameters.

ASSIGN

SHIFT +



SHIFT+ASSIGN - This will generate a new random "seed" for generating random numbers in the patch generator. Use this to vary the randomizer algorithm.

In ASSIGN A, B, P menu:

ASSIGN

SHIFT +



SHIFT+ASSIGN: Stores the current assign.

ENTER

SHIFT +



SHIFT+ENTER : Alternates between loading the default and the user ASSIGN for each of the 3 ASSIGN slots in memory.

PATCHGEN

SHIFT +



SHIFT+PATCHGEN : Selects the mod source to route to the current ASSIGN. (Mod wheel, aftertouch, and breath CCs can be used to control ASSIGNS A and B)

In MIDI menu:**ASSIGN****SHIFT +**

SHIFT+ASSIGN: Stores the current settings as the default on boot-up.

In RG VEL menu:
 OSC 1

 OSC 2


SHIFT+RG VEL - Pressing this when in the velocity control menu will enable velocity control. Pressing again will turn velocity control off.

MIDI MENU

The MIDI MENU contains the settings used for communicating with the synth(s) you plan on programming with the DW-8P. DW-8P uses MIDI to communicate with the DW/EX synth. There are 2 "channels" available on the DW-8P, a MAIN, and an AUX channel. Note that the MAIN and AUX channels are not MIDI channels. They are controller channels. The DW-8P can control 2 separate DW/EX synths from one unit. One synth is the MAIN synth, and the other is the AUX synth. The DW-8P can control both synths individually or simultaneously, for easy on-the-fly editing. Use the MAIN/AUX/BOTH toggle (SHIFT+MAIN) to control which synth the DW-8P is sending control data to. Press SHIFT+ASSIGN to store your MIDI settings as defaults. (This only needs to be done once.)

The DW-8P uses SYSEX and CC data to communicate with the synthesizer. (All parameters except MASTER VOLUME are sysex.) Whenever a slider on the DW-8P is moved, the new value is transmitted to the synth. The data will only be transmitted to the synth receiving on the current controller channel. (MAIN, AUX, BOTH) When setting up the DW-8P for the first time, the model (DW8K, EX8K, or DW6K) must be selected on the MAIN and AUX channels. If only using one synth, only the MAIN channel must be configured. Make sure that the MAIN



and AUX channels are set to different values. The DW-8P will not transmit sysex if both channels are set to the same value.

MIDI MENU functions are as follows:

MAIN CHANNEL : Sets the MIDI channel of the MAIN synth channel. (1-16)

MAIN TRANSLATE : Selects which CC to SYSEX translate mode is used. (See CC Translate section)

MAIN UNIT TYPE : Use to select the model of synth used on the MAIN channel. Select DW8K for use with DW-8000. Select EX8K for use with EX-8000, and select DW6K to use with a DW-6000. Since DW-6000 can only read sysex on channel 1, DW6K option is only available on the MAIN channel. Select USR to use the currently selected USER MIDI CC map.

AUX CHANNEL : Sets the MIDI channel of the MAIN synth channel. (1-16)

AUX TRANSLATE : Selects which CC to SYSEX translate mode is used. (Default is translate off)

AUX UNIT TYPE : See above

CC TO SYSEX TRANSLATE MODES

The DW/EX synth parameters can only be changed using sysex, which can be an issue for people recording controller data with their DAW. Many DAWs do not allow SYSEX message to be recorded. DW-8P allows incoming CC messages (See table in last section of manual) to be translated into SYSEX messages for the Juno, allowing users to record and playback slider movements. DW-8P has 3 CC to SYSEX translate modes:

CC+SYX : In this mode, incoming CCs are translated into SYX. When a slider is moved, the corresponding SYX message as well as the CC message will be transmitted from the DW-8P MIDI OUT. The synth will respond to the SYX, and the DAW can record the CC. When this recorded CC is played back into the DW-8P, the corresponding SYX message will be sent to the synth.

CC ONLY : In this mode, incoming CCs are translated into SYX, and when a slider is moved, only the coded CC message will be sent (No sysex). This means that in order for a SYX message to be sent to the synth when in this mode, a CC must be played back into the DW-8P. This mode is ideal for people recording slider movements into their DAW and looping them back into the DW-8P.

SYSEX ONLY : In this mode, incoming CCs are translated into SYX, and when a slider is moved, only the corresponding sysex is transmitted. Use this mode if playing back a recorded CC track and not wanting the MPG to transmit CC messages when a slider is moved.

MIDI MENU 2 - DATA FILTERING AND MAPPING

Page 2 of the MIDI menu contains the MIDI MAP parameters. The MIDI MAP function Requires a brief explanation to fully understand how this function works.

In many MIDI setups, a DAW is used to record and playback MIDI data. This can sometimes cause a MIDI feedback loop, where the DW-8P is sending data, CC for example, and receiving this same data at the MIDI IN of the DW-8P. For example, if the DW-8P is connected to the EX/DW as shown in figure xxx, under normal circumstances, when a note gets played from the DW keyboard, it is sent to the DW-8P, where it gets sent right back to the DW. This will cause erratic behavior because there is now a feedback loop.

The mapping function solves the problem just mentioned using a simple solution. The DW/EX 8000 synths will only receive sysex on the channel the synth is set to receive on (MIDI CHANNEL parameter). If the DW/EX channel is set to channel 3, but it receives a sysex message on channel 4, the synth is going to ignore the message. When the EX/DW is in OMNI MODE (Parameter 86 = 1 on DW/EX8K and parameter 83 = 1 on DW6K) note and CC data will be recognized by the synth on all channels. If OMNI mode is set to 0, then the synth will only respond to incoming MIDI data on the synth's MIDI channel. The MAPPING feature takes advantage of this. When MAPPING is activated, the DW-8P will only accept incoming note and CC data on the MAIN or AUX MIDI channels (Set in MIDI PAGE 1). If valid note or CC data is received on the MAIN or AUX channel, then the DW-8P will change the channel of that data to the MAIN or AUX MAP CH, and then send it. When the mapped note/cc data goes through the feedback loop, it gets filtered by the DW-8P because it does not match the MAIN or AUX channel. If the synth is not in OMNI mode, it will not respond to the mapped note/cc data, thus breaking the feedback loop.



MAIN MAP CHANNEL : Anything on the MAIN or AUX channels (From MIDI MENU pg 1) will be sent out of the DW8P on the corresponding MIDI MAP CH. When mapping is turned on, the DW8P will ignore any data coming in on any channel other than the MAIN and AUX channel (Set in MIDI PAGE 1). When the DW sends the data out mapped to the MAP CH, when it re-enters the DW's MIDI IN< the data will be rejected (Because it doesn't match the MAIN or AUX MIDI IN channels. This is how a feedback loop is prevented. The synth must not be in OMNI mode for this to work.

AUX MAP ENABLE : Enables MIDI MAPPING of incoming note and controller data.

AUX MAP CHANNEL : Same as MAIN MAP CHANNEL.

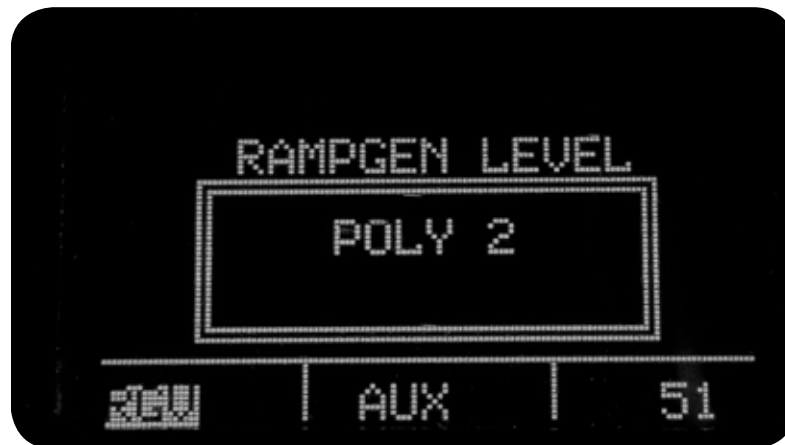
AUX MAP ENABLE : Same as MAIN MAP ENABLE.

MAIN MENU

The MAIN MENU will display the currently selected DW/EX parameter and its current value. Since every parameter on the DW/EX has differing numbers of steps, each slider's CC value (0-127) is displayed in the lower right corner. This is useful if layering a user map with the DW/EX control surface. In the left corner of the MAIN screen, the word RGV (Ramp Generator Velocity) is displayed. When highlighted, this means that the ramp generator is currently responding to the velocity of incoming notes. (See Ramp Generator Velocity Control section)



Pressing MAIN while in any other menu will jump to the MAIN screen. If already on MAIN screen, then pressing main will navigate to the DW/EX settings menus, which allow users to select programs, change the KEY MODE, and toggle VCF BEND. (Pressing SHIFT+RIGHT in any menu will also toggle through the KEY MODE options.)



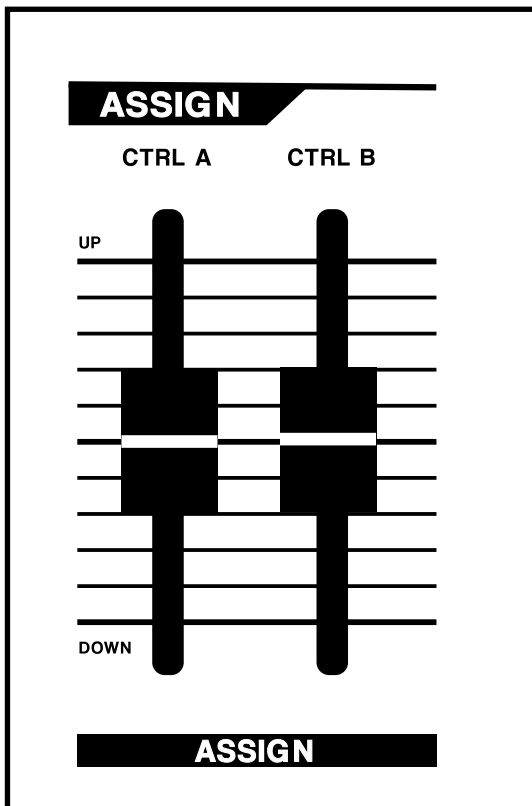
The active synth channel (not MIDI channel) will be displayed on the MAIN menu. (MAIN, AUX, BOTH) Pressing SHIFT+MAIN in any menu will toggle between MAIN/AUX/BOTH.

When in the MAIN menu, the function of the VOLUME SLIDER can be toggled to function as a volume control, or as a crossfade between the MAIN and AUX synth. To toggle this, go to MAIN MENU and move the volume slider so that MAIN VOLUME is displayed. Press ENTER. Now the screen will display CROSSFADE when the slider is moved.

If any slider other than VOLUME is selected when in the main menu, pressing ENTER will enter the USER CC MAP MENU and display that slider's USER MAP CC #. To exit the USER CC MAP MENU press MAIN.



THE ASSIGN MENUS



The DW-8P features a powerful feature called an ASSIGN. There are 3 separate ASSIGNs in the DW-8P: ASSIGN A, ASSIGN B, and ASSIGN P. Each assign is a control matrix that allows users to control up to 5 DW/EX parameters using the CTRL A, CTRL B sliders, an expression pedal, a mod wheel, aftertouch, or a breath controller.

Pressing the ASSIGN button will navigate to the ASSIGN menu. The currently selected ASSIGN (A, B, or P) will be displayed on the screen. Each press on the ASSIGN button will navigate to another ASSIGN. Each ASSIGN can have up to 5 layers. Each layer of an ASSIGN contains the following settings:

LAYER NUMBER - The top line of the ASSIGN menu displays the current assign, as well as how many layers there are in that ASSIGN, and which of those layers is currently being displayed. For example, ASSIGN A LYR 1 OF 5 means that ASSIGN A is currently selected, and it has 5 layers. Layer 1 settings are being currently displayed.

PARAMETER: Each layer of an ASSIGN must have a parameter assigned to it. For example, selecting VCF CUTOFF as the parameter when in ASSIGN A will make the VCF CUTOFF value change when CTRL A is moved.

MIN & MAX: Use these settings to set the range of the currently selected parameter in the current layer.

INVERT: Turn INVERT on to invert the current ASSIGN LYR

It is easiest to explain how the ASSIGNS work by using an example. Let's say that you would like to use the CTRL A slider to sweep the VCF CUTOFF between 0 and 40, while simultaneously sweeping the VCF RESONANCE from 31 to 15. Normally, this would require one hand sweeping the CUTOFF slider up, while the other hand is sweeping the RESONANCE slider down. By assigning each of these parameters to a single ASSIGN, this can be done with one hand, or can be automated with a single CC lane on a DAW.



To create an assign that does what was just mentioned, select ASSIGN A. The settings in layer 1 would be as follows: LYR 1 of 2 VCF CUTOFF MIN:0 MAX:40 INVERT: OFF The settings in layer 2 would be: LYR 2 of 2 RESONANCE MIN: 15 MAX:31 INVERT: ON These settings can be entered manually using the cursor to navigate and the encoder to dial in the values, or a shortcut can be used. To automatically fill in all parameters of an ASSIGN layer, hold SHIFT while moving the parameter to be assigned to the current layer. Moving the slider through the desired range will automatically enter the MIN and MAX settings. The INVERT setting will be entered when the SHIFT button is released. If the final value of the slider is higher than the starting value, then invert will be OFF. If the final value is less than the starting value, INVERT will be ON. Using this method, it is possible to set up a 5 layer ASSIGN in a few seconds. The ASSIGNS correspond to the CTRL A, CTRL B, and EXP PEDAL and moving one of these 3 controllers will always control the associated ASSIGN. It is also possible to assign incoming MOD WHEEL, BREATH CONTROL, and AFTERTOUCHE MIDI messages to the ASSIGNS. This allows any DW/EX parameter to be controlled by these. ASSIGN A will allow incoming MOD WHEEL or BREATH messages to be routed to it. ASSIGN B will allow incoming channel AFTERTOUCHE messages to be routed to it. This allows for great flexibility when using a controller keyboard with your DW/EX. Notice that in the ASSIGN menu, the box in the lower left of the screen will display NO MOD. This means that no incoming messages are being routed to this assign. To route incoming BREATH, MOD WHL, or AFTERTOUCHE messages to an ASSIGN, press SHIFT + PATCHGEN when in the ASSIGN MENU. This will cycle between NO MOD and the available modulation routings available. Each of the 3 ASSIGNS has a USER PRESET and a DEFAULT PRESET. To store the USER PRESET, navigate to the ASSIGN you'd like to save, then press SHIFT+ASSIGN (STORE). To recall this ASSIGN, navigate to the ASSIGN (A, B, or P) you'd like to recall, then press SHIFT+CHORUS ON/OFF (LOAD). If the DEFAULT is currently loaded, then the USER PRESET will be recalled. If the current ASSIGN is on a USER PRESET, then the DEFAULT will be recalled.

A memory card upgrade is planned for the DW-8P, which will allow users to save as many ASSIGN setups as they wish.

USER CC MAPS

The DW-8P will allow users to transmit any CC message (0-127) from any of the 45 parameter sliders, excluding CTRL A & B, and VOLUME. This is a useful feature that allows the DW-8P to send controller messages to other hardware or software synths. To create a layer that transmits the current USER CC MAP, select USR in the MIDI PROTOCOL menu. To view or "peek" at a slider's CC assignment, navigate to the MAIN MENU screen and press ENTER.



This will display ASSIGNABLE CC as well as the controller number this slider is set to transmit when moved. To change a slider's CC assignment, press SHIFT and move the slider or use the ENCODER. Each slider can transmit from either the currently selected layer channel (MAIN MIDI CH & AUX MIDI CH) or a user-selected channel. Pressing SHIFT and moving the encoder will set the MIDI channel for each slider to transmit on. If using the layer midi channel, select XX. To unmap a CC assignment from a slider, select the slider to be unrouted and press PATCHGEN (CLEAR). Pressing SHIFT + PATCHGEN in CC MENU will clear all slider CC mappings. Use the RIGHT & LEFT buttons to select a USER CC MAP. To load a CC MAP, select the MAP, then press SHIFT+ ENTER (LOAD). To store a CC MAP, select the MAP location the new setting is to be stored in, then press SHIFT + ASSIGN (LOAD). 8 user maps can be stored on DW-8P.

RAMP GENERATOR VELOCITY CONTROL

DW-8P adds a useful performance feature to the DW/EX called RAMP GENERATOR VELOCITY CONTROL. The ramp generator on the EX/DW is used to bend one or both oscillators toward zero whenever a key is pressed. This creates a "dip" or a "scoop", which can be used to detune the two oscillators over time. The DW-8P allows this to be more nuanced and expressive by making it velocity controlled.

To enter the RGV menu, press SHIFT+RG VEL. When RG TIME or RGA (Ramp Gen Amount) is set to ON, then those parameters will react to any incoming note's velocity, as long as the velocity of the note is greater than the RGA THRESH (Threshold) value. If a note's velocity is below this value, then no ramp generator will be applied to that note. Any note with a velocity greater or equal to the threshold value will have ramp gen applied based on the RGT SENS (Ramp Gen Time Sensitivity) and RGA SENS (Ramp Gen Amount Sensitivity)

values. This allows the ramp generator to be used to expressively apply detuning in real time.



When in the RGV menu, press shift + RG VEL to turn all RGV response ON. Use this button combination again to turn all RGV response OFF. When RGV response is ON, then RGV will be highlighted in the lower left corner of the display in the MAIN menu.

FX PRESETS

This feature applies to DW-8000 and EX-8000 users only. To select an FX preset (CHORUS, FLANGE, DELAY, CHORUS/DELAY), press SHIFT+FX PRESET. Now the FX Preset menu will be displayed. To select a preset, use the data encoder dial. To enable or disable the selected effect, press CHORUS button.

OSC 2 EXTRA INTERVALS

DW-8P adds the ability to select multiple "extra" tuning intervals for the OSC2 on the EX/DW. Intervals available are:

Unison, min 2nd, maj 2nd, min 3rd, maj 3rd, perf 4th, perf 5th, + 1 oct, + oct and maj 3rd, hi-frequency 1, hi frequency pedal tone, hi frequency 2, -1 step, -oct and 3rd, "super detune".

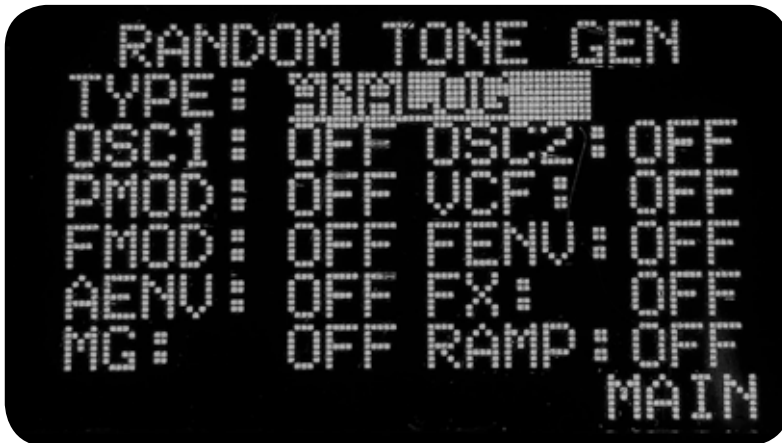
Super detune function allows more detuning than the normal unison setting.

COMBINED PARAMETERS

For ease of use, the FENV AMT and FENV polarity parameters are combined. The same is true of the RAMP GENERATOR amount and polarity. DELAY TIME and DELAY FACTOR are now combined. To change polarity of the envelope or ramp gen, simply move the slider to above (+) or below (-) the center point (0).

RANDOM TONE GENERATOR MENU

Pressing the PATCHGEN BUTTON once will open the RANDOM TONE GENERATOR. (RTG) The RTG is a powerful sound creation tool that will enhance creativity and generate useful, expressive tones. The RTG can generate a wide array of useful musical sounds, ranging from lush pads to metallic bells. By selecting the category of sound to be generated, many different textures can be layered in a matter of seconds, allowing users to hear what the EX/DW is capable of. The RTG has a masking feature which allows the user to "mask" sections of the synthesizer that should not be randomized.



RTG menu contains the following parameters:

TYPE - This allows the user to select the type of random tone to be created. Selecting ANY will randomly choose a category and generate that type of tone. There are multiple categories of tone types that can be created:

BELL/MTL - Metallic tones, bells, glockenspiel, chimes, metallic klangs, digital chimes. These sounds have an undamped decay.

E. PIANO - DX-style EP, analog pianos, clavichord, harpsichord. Piano-style damping.

PAD - Atmospheric pads.

VOCALS - This category is not meant to be a "choir" sort of algorithm. It creates vocal phenomes using an algorithm.

ANAL:OG - Classic analog synths.

DIGITAL - Classic digital sounds.

BASS - Acoustic basses, E bass, FM bass, synth bass.

E.P. DW6K - Piano category based on DW-6000 features. (DW6k patchgen categories still work with the other EX/DW 8000)

BELL 6K - Bell/Mtl category based on DW-6000 features.

ANALOG 6K - Analog category based on DW-6000 features.

RANDOM - Completely random patch parameters. Chaos.

Each section of the EX/DW can be masked (protected from being randomized by the RTG) by selecting the section, and turning MSK on. The MASK function is divided into the following subsections:

DC01 - This affects DCO 1 section only.

DC02 - affects DC02 only.

PMOD - Affects PITCH and MIX sections.

VCF - Affects cutoff, resonance and key tracking.

FMOD - Affects filter MG amount, envelope amount.

FENV - Affects Filter envelope.

AENV - Affects Amp envelope.

FX - Affects chorus and digital delay sections.

MG - Affect modulation generator.

RAMP - Affects ramp generator.

Pressing ENTER while in the RTG menu will generate a random tone on the synth layer selected. Pressing SHIFT+ENTER will generate a separate random tone on each synth layer, allowing users to quickly layer 2 random tones.

MANUAL MODE

Pressing ENTER while in this menu will transmit the value of all 45 parameters on the front panel.

SCRATCH PATCH GENERATOR

Generates a basic generic starting point for creating a new patch.

CC TRANSLATE MODE

In the MIDI settings menu, users can set the communication preferences of the DW-8P. In the TRANSLATE setting for the MAIN and AUX channel, OFF, CC2SX, CC ONLY or SYSEX ONLY can be selected. If a translate mode is selected, then moving a slider on that channel will send a corresponding SYSEX or CC message to the synth. The chart to the right shows the DW/EX parameters and their corresponding CC translation values. The DW-8P will transmit on these CC controllers when TRANSLATE modes are enabled. It will translate these CC messages into their corresponding SYSEX parameters when TRANSLATE is enabled.

Each CC getting translated can have a value between 0 and 127. DW-8P handles converting the incoming CC data into DW/EX format. This ensures easy CC integration with no fiddling and no risk of the synth receiving "out of range" values, which freeze the synth.

DW/EX Parameter	Midi CC Data	Notes
OSC 1 Octave 1	8	
OSC 1 Waveform	9	
OSC 1 Level	10	
Rampgen Time	11	
Rampgen Amount	12	64 = 0, above 63 = +, below = -
OSC 2 Octave	13	
OSC 2 Waveform	14	
OSC 2 Level	15	
OSC 2 Interval	16	
OSC 2 Detune	17	
Noise Level	18	
Cutoff	19	
Resonance	20	
Keyboard Tracking	21	
VCF Env Amt	22	64 = 0, above 63 = +, below = -
FENV Attack	23	
FENV Decay	24	
FENV L3	25	
FENV T3	26	
FENV Sustain	27	
FENV Release	28	
FENV V Sens	29	
AENV Attack	30	
AENV Decay	31	
AENV L3	32	
AENV T3	33	
AENV Sustain	34	
AENV Release	35	
AENV V Sens	36	
MG Waveform Select	37	
MG Frequency	38	
MG Delay	39	
OSC MG AMT	40	
VCF MG Amt	41	
Delay Time	43	Delay Time and Delay Factor are merged.
Delay Feedback	44	
DMod Freq	45	
DMod Amount	47	
Delay Amount	48	
Glide Time	49	
AT Vibrato	50	
AT Filter	51	
AT VCA	52	

BOOTLOADER & OS UPDATES

The DW-8P has a MIDI bootloader that allows users to update their OS in the field using a MIDI sysex utility such as MIDI OX. New OS files are available from Retroaktiv when updates are issued. To obtain an OS file, contact Retroaktiv and request a copy of the latest SYSEX OS file.

HOW TO USE THE BOOTLOADER

To load a new OS onto the DW-8P , power up the DW-8P while holding the encoder button down. The CHORUS LED should blink once when the bootloader has been opened.

Now the .syx file can be sent to the DW-8P. If there is an error, the DW-8P CHORUS LED will blink to indicate that there is an error. This means that the unit must be power cycled and the process restarted.

The most common cause of error is that the delay after F7 setting in MIDI OX needs to be longer. Experiment to find what delay time works on your system.

When the file has been successfully loaded, the CHORUS LED will be solidly lit.

BOOTLOADER ERROR CODES:

2 blinks: Didn't receive 0xF0 at beginning of message. This indicates a fundamental problem with the .syx file or MIDI communication. This means that a non-sysex message was received, and the bootloader must be restarted. The bootloader expects to see an F0 command bookended by an F7. If your DAW sends out active sensing messages, this will cause the bootloader to reject the incoming file. Any stray MIDI data will cause the bootloader to abort and give an error message.

3 blinks: There was a problem parsing the dummy packets used as a placeholder while the system is writing data to the EEPROM space.

4 blinks: Wrong product ID. Expected if a sysex file intended for a product other than the connected programmer is used.

5 blinks: Error parsing sysex header. This is the most likely error to occur if the MIDI connection is not reliable and the system is receiving corrupted data.

6 blinks: Checksum failure. There was an error in one or more of the bytes received during the sysex transfer.

7 blinks: Flash write failure. There was an error writing data to the flash memory in the microcontroller.

8 blinks: Other error. The system received unexpected data or there is a software bug in the bootloader.

WEIGHT AND DIMENSIONS

The DW-8P is 6.6 pounds and the enclosure measures 14.5" x 5.8" x 1.5". The DW-8P can also be rackmounted using optional rack ears, which can be purchased at www.RetroaktivSynthesizers.com.

The enclosure has 4 heavy-duty screw-on rubber feet for no-slip tabletop use.

THANK YOU!

Thanks for using these Retroaktiv synthesizer products. We are a small company and we appreciate the musicians and artists using this gear. If you have any questions or comments about this or other products, please contact us by visiting www.RetroaktivSynthesizers.com and using the CONTACT US link at the top of the page. We want to hear from you about your user experience and feature requests. Sincerely, -Rob Carrier Owner and Chief Engineer/Designer/Programmer at Retroaktiv LLC.

All Retroaktiv products are built in Colorado USA. All PCB assembly and metal work is contracted to local Colorado companies. Thanks for supporting us!

This manual was written by Rob Carrier.

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