

Using Wind Controllers with Ensoniq Keyboards

Brian Rost

Although the keyboard is clearly the most common controller used with synthesizers today, this was not always the case. In fact, the first synthesizers had no keyboards at all. With the development of MIDI, musicians have gained a wide range of controller options, including percussion controller, guitar controllers and wind controllers.

The expressiveness of wind instruments makes the concept of wind controllers alluring, yet many musicians are disappointed when they try one out. The problem lies not in the controller itself, but in the sound in the synth or sampler that's being used. These sounds have been optimized for playing from a keyboard, so they seldom take advantage of the performance control possible from a wind controller. In this article, we will see how you can modify your patches to get the most out of your wind controller. The techniques in this article can be applied to all Ensoniq instruments except the Mirage. However, the patch examples given will be for the ESQ-1 and SQ-80.

The market for wind controllers ranges from the Akai/Steiner units, selling for well over a thousand dollars, through the Yamaha WX series in the high hundreds, down to the Casio DH-100 and DH-200, which can be found for as little as fifty dollars. Obviously over such a wide price range, the features of the different models on the market vary widely. However, they do have a number of things in common.

First, all detect breath pressure and use this in conjunction with depressing keys to trigger note on and note off messages. Breath pressure also is used to send out continuous control data during the duration of the note. The Casio units send this as channel pressure (aftertouch) only, while the Akai and Yamaha units give you the option of selecting controller #2 (breath) or #7 (MIDI volume) as an alternative. Luckily, all Ensoniq instruments except the Mirage respond to all three of these controllers, giving you flexibility in how you choose to control your sounds. In addition, with the exception of the earliest Steiner units, wind controllers transmit note-on velocity (based on breath pressure again). Program changes can be sent, allowing the player to change patches in live situations, even in mid-song, and portamento on/off (controller #65) is also supported. Finally, wind controllers are essentially capable of generating only one note at a time (although both Yamaha and Steiner have programmable "chord hold" features that let you generate predefined intervals from a single played note).

OK, let's look into modifying some patches. First, we'll modify a wind instrument patch. I've chosen 3TRUMS, which is one of the factory patches shipped with the ESQ-1. I have converted the patch to WTRUMS, a patch which retains the overall timbre of the original but adds control of the amplitude and brightness of the sound by breath pressure. Notice that the three DCAs in the original patch are not modulated by an envelope. The overall envelope of the original patch comes from DCA4 and ENV4,

which I left untouched. The level of the other DCAs is set to zero, then PRESS is used as a modulator. On the filter, ENV1 and LFO1 are used to provide the classic brass timbre. We dispense with the LFO in order to add PRESS as a modulator. The mod depth of ENV1 is lowered, so that at high levels of pressure, the sound doesn't become overly bright.

ESQ-1 PROG: WTRUMS										BY: Brian Rost	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	PULSE	ENV2	-2	LFO3	+1			
OSC 2	0	0	1	PULSE	ENV2	-1	LFO3	+1			
OSC 3	0	0	2	PULSE	LFO1	+4	LFO3	+1			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	24	ON	PRESS	+63	OFF	-					
DCA 2	24	ON	PRESS	+63	OFF	-					
DCA 3	24	ON	PRESS	+63	OFF	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	26	2	31	PRESS	+9	ENV1	+42				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	OFF	-							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	63	ON	OFF	TRI	0	63	0	ENV3			
LFO 2	0	ON	OFF	SQR	51	44	0	OFF			
LFO 3	22	OFF	ON	TRI	0	5	25	PEDAL			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	63	54	63	0	15	0	26	9	0	
ENV 2	27	0	0	0	0	0	17	0	63	15	
ENV 3	63	0	0	0	0	0	15	0	27	0	
ENV 4	63	63	63	40	30	17	0	0	11	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	ON	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

When played from the keyboard, WTRUMS sounds pretty strange and not much like 3TRUMS at all. Hook up a wind controller, though, and now you have an electronic trumpet sound that faithfully tracks your breath pressure; it gets louder and brighter as you blow harder, and responds to tonguing as well. In general then, to make a patch respond like a wind instrument, replace the DCA envelopes as a modulator with PRESS.

Now let's look at some other applications of breath pressure that go beyond using it to provide envelopes. For instance, take LEGEND, a flute-like patch for the SQ-80 that Kirk Slinkard submitted in the May, 1990 Hackerpatch column. This patch uses the pedal to mix a chiff sound in over the base of the patch. Simply setting the modulator for DCA3 from PEDAL to PRESS makes the chiff now respond to how hard you blow your wind controller. ZTRING is another of Kirk's SQ-80 patches, appearing in the July, 1990 Hackerpatch. This patch uses the pedal to control a filter sweep, so substitute PRESS for PEDAL as the second filter modulator, and now the filter will track your blow-

ing. In general, anytime either PEDAL or WHEEL is being used as a modulator, PRESS may be substituted. Since both hands will be on the wind controller, if you need a second real time modulator, choose PEDAL, since it'll be almost impossible to manipulate the mod wheel.

Finally, let's take a look at portamento (or slurs). On Ensoniq machines, this is called glide. Portamento allows for smooth legato phrasing of notes, something which is commonly used in playing wind instruments. It is certainly desirable to be able to have portamento control in a wind controller. Unfortunately, the ESQ-1 and SQ-80 do not support any way of turning glide on and off while playing (it is fixed based on the setting of GLIDE in the MODES page of each patch). The EPS, VFX and SQ-1 do allow turning glide on and off by using the sustain pedal (this is covered in their manuals). None of the Ensoniq machines can map portamento on/off (controller #65) directly to the glide feature. I would suggest that EPS, VFX and SQ-1 owners simply use the sustain pedal as a portamento switch. It's as convenient as using a switch on the wind controller, and produces the desired effect. For ESQ-1 and SQ-80 owners, a more roundabout scheme must be employed.

I've started with the factory ESQ-1 patch MINI M, and modified it as shown into MINI2M, which is then layered with a patch called MINI3M. MINI3M is the same as MINI2M, except that LEVEL is 0 for all DCAs, ENV2 depth for DCA3 is 0 (or set the modulator to OFF), the depth of XCTRL for all DCAs is set to +63 instead of -63 and GLIDE is set to 6. While layering can be expensive in terms of using up voices, notice that both patches have MONO=ON, so at any given time, only two voices will be used. To make the patch work, go to the MIDI page and set

XCTRL to 65.

In the original patch, DCA1 and DCA2 had LEVEL set to 63, while DCA3 had LEVEL set to 0. DCA1 and DCA2 had no modulators, while DCA3 was modulated solely by ENV2, with a depth of 63. XCTRL is used as a modulator for all three DCAs at a depth of -63 for MINI2M and at a depth of 63 for MINI3M. What happens when you play is this: Normally, the portamento key is off, the value of CC #65 is 0, and MINI3M is essentially muted. When the portamento key is on, CC #65 has a value of 127, so MINI2M is muted and MINI3M sounds. We are effectively switching between the two patches in the layer based on the value of CC #65. If you try this and listen closely, you will notice that depressing or releasing the portamento key while sustaining a note causes a slight glitch. To use this effectively, you need to develop the technique of switching portamento on and off between notes in order to get a seamless sound. Once you get used to this, you can smoothly go from staccato to legato phrasing as easily as you would on an actual wind instrument.

A wind controller can be a valuable addition to your synthesist's bag of tricks, adding a new range of creative expression. I've found it useful for everything from playing smoothly swelling pads to loading drum licks into a sequencer (I can "toot" drum fills easier than playing them on a keyboard). The Ensoniq keyboards with their flexible modulation routings are naturals for use with wind controllers and by using the techniques I've described above, you can easily modify your favorite patches to maximize the potential of playing them from a wind controller. Whether using the wind controller for live performance or just for entering sequences, it can be a highly expressive tool to help put new life into your music. Now let's blow! ■

ESQ-1 PROG: MINI2M										BY: Brian Rost									
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH											
OSC 1	0	0	0	SAW	LFO1	+5	LFO1	0											
OSC 2	0	0	3	SAW	LFO1	+5	LFO1	0											
OSC 3	0	0	5	SAW	LFO1	+5	LFO1	0											
	LEVEL	OUTPUT		MOD#1	DEPTH	MOD#2	DEPTH												
DCA 1	63	ON		ENV2	0	XCTRL	-63												
DCA 2	63	ON		ENV2	0	XCTRL	-63												
DCA 3	0	ON		ENV2	+63	XCTRL	-63												
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH												
FILTER	15	3	30	ENV3	48	PRESS	63												
	FINAL VOL	PAN	PAN MOD	DEPTH															
DCA 4	63	8	LFO2	63															
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD											
LFO 1	26	ON	OFF	TRI	0	1	0	PEDAL											
LFO 2	11	ON	OFF	TRI	0	0	0	PRESS											
LFO 3	16	OFF	OFF	NOI	0	1	20	OFF											
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK									
ENV 1	63	8	20	0	0	0	50	63	20	9									
ENV 2	63	50	45	0	0	0	50	63	20	9									
ENV 3	63	34	22	8	0	0	25	63	20	9									
ENV 4	63	63	63	0	0	1	63	63	6	0									
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC											
MODES	OFF	OFF	ON	0	ON	OFF	OFF	OFF											
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY												
	OFF	-	ON	MINI3M	OFF	-	-												

ESQ-1 PROG: MINI3M										BY: Brian Rost									
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH											
OSC 1	0	0	0	SAW	LFO1	+5	LFO1	0											
OSC 2	0	0	3	SAW	LFO1	+5	LFO1	0											
OSC 3	0	0	5	SAW	LFO1	+5	LFO1	0											
	LEVEL	OUTPUT		MOD#1	DEPTH	MOD#2	DEPTH												
DCA 1	0	ON		ENV2	0	XCTRL	+63												
DCA 2	0	ON		ENV2	0	XCTRL	+63												
DCA 3	0	ON		ENV2	0	XCTRL	+63												
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH												
FILTER	15	3	30	ENV3	48	PRESS	63												
	FINAL VOL	PAN	PAN MOD	DEPTH															
DCA 4	63	8	LFO2	63															
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD											
LFO 1	26	ON	OFF	TRI	0	1	0	PEDAL											
LFO 2	11	ON	OFF	TRI	0	0	0	PRESS											
LFO 3	16	OFF	OFF	NOI	0	1	20	OFF											
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK									
ENV 1	63	8	20	0	0	0	50	63	20	9									
ENV 2	63	50	45	0	0	0	50	63	20	9									
ENV 3	63	34	22	8	0	0	25	63	20	9									
ENV 4	63	63	63	0	0	1	63	63	6	0									
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC											
MODES	OFF	OFF	ON	6	ON	OFF	OFF	OFF											
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY												
	OFF	-	OFF	-	OFF	-	-												