

Prophet '08

Operation Manual



Dave Smith Instruments

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Tested To Comply
With FCC Standards
FOR OFFICE USE



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For Technical Support, email: support@davesmithinstruments.com

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Quick Start

Thanks for purchasing the Prophet '08! Listen to the sounds, twiddle some knobs, have some fun!

Please Register!

Please go to www.davesmithinstruments.com and register your synth. If you purchased directly from us, there is no need to register – we already have your contact information.

So, plug in the power supply, connect (in stereo!!) to your mixer/sound system, switch on the power, and start playing!

Try applying keyboard pressure (aftertouch) and the mod wheel. Many sounds are fairly simple at first, then come alive when you use the controllers. With other sounds, you may need to hold the notes a while to let the sound unfold. Playing in different ways has a big effect on the programs.

Selecting and Editing Programs and Global Settings

You can use the +/- switches to step through the Programs. Also, the PARAM 1 knob changes the Program and PARAM 2 changes the Bank.

If you want to edit a Program, just turn any knob. The new value will be displayed in the bottom line of the LCD (the top line displays the programmed value for handy reference). Once a parameter has been selected, the PARAM 2 knob will also change the value, and the +/- switches will increment or decrement the value. Hit the + and - switches at the same time to set the parameter to zero.

That's the whole idea with this instrument – grabbing knobs and changing the sound! After turning knobs, just hit the Program switch so the LCD goes back to the Program / Bank screen, allowing you to change Programs again.

Press the GLOBAL switch to change higher level parameters, such as MIDI channel number, Transpose/Detune, and so on. These are remembered when the synth is turned off. Note that in Global Mode, the screen displays two parameters at a time. The top parameter is changed by the PARAM 1 knob and the lower parameter is edited by the PARAM 2 knob. The +/- switches select new pages.

Summary

You should be up and running now; for more operation information, read on. Or, just look up specific parameters for detailed notes. Pages 27 through 29 contain a handy reference for mod destinations and sources. At some point you should

read through the manual to discover all the little features that you might not notice at first.

I should mention that this manual does not include explanations of basic analog synthesizer functions. It assumes you already know what an oscillator is, how a lowpass filter affects the sound, what an ADSR envelope looks like, and so on.

Fortunately, these days it is quite easy to find such resources on the Internet. If you want to learn the lingo and the basics, just try a search in Google (or the search engine of your choice), something like “analog synthesizer tutorial.” You’ll find plenty of good reading material.

Have fun!

Dave Smith

Special thanks to:

Tim Ande, David Bryce, Andrew McGowan, Dave Polich, Ravi Ivan Sharma, and Stefan Trippler.

Getting Connected

The Prophet '08 has several inputs and outputs on its back panel.

Power Input – Connect the power supply included with your Prophet '08. The power supply comes with different AC adaptor prongs that allow it to work anywhere in the world. If for whatever reason you need to use a different supply, it must match the specifications on the rear panel near the input jack. **Note:** The supply label says “Evolver” on it for reference.

MIDI In – To receive MIDI data from another device, connect this to the other device's MIDI Out.

MIDI Out – To send MIDI data to another device, connect this to the other device's MIDI In.

MIDI Thru – Received MIDI data is passed through to MIDI Thru so that multiple MIDI devices can be chained on the same MIDI buss.

Poly Chain Out – A special MIDI output that enables you to chain a second Prophet '08 for double polyphony. See *Using Poly Chain* on page 26 for details. When Poly Chain is turned off, this jack acts as a second MIDI Out.

Pedal/CV – This input can be connected to two types of controllers: a standard expression pedal that has a variable resistor on a TRS (tip-ring-sleeve) 1/4" phone plug, or a synthesizer or other device capable of producing a control voltage. The control voltage range is 0 to 5 volts DC, and the input is protected against higher and negative voltages. Note that this input is heavily filtered for clean operation, so there is a limit to the speed it will respond.

Sustain – Works with any standard, normally open or normally closed momentary footswitch. See “Damper Polarity” in *Global Parameters* on page 8 for information about changing the polarity to work with your type of footswitch.

Main Output – The Prophet '08's unbalanced, stereo outputs.

Output B – Each of the Prophet '08's 256 programs contains two layers, A and B. Each layer can be a completely different sound and the layers can be combined as splits and stacks. If you just use the Main Output, layers A and B are both output there. If you plug two additional cables into Output B, however, the sound of B layer will be removed from the Main Output and sent to Output B. This enables you to process the two layers separately.

Headphones – A 1/4 inch stereo phone jack.

Basic Operation

When you first turn the power on, the keyboard will be in Program Mode with the PROGRAM switch lit and the following screen active:

```
Programxxx Bankx
xxxxxxxxxxxxxxxx
```

The top line shows the Program (1...128) and Bank (1...2) number of the currently selected Program, and the bottom line shows the 16-character name of the Program. The PARAM 1 knob changes the Program, and the PARAM 2 knob changes the Bank. The Program can also be incremented or decremented by pressing the +/YES or -/NO switches respectively.

Each Program has two layers, A and B. Each layer can contain a completely different patch. The layers are typically used to create stacked and split Programs, though you can also switch quickly between the layers using the EDIT LAYER B switch. When EDIT LAYER B is lit, the front panel controls will edit the layer B patch.

Note: When playing in a live performance, EDIT LAYER B provides a handy way to toggle quickly between two completely different sounds with a single switch. This applies only in normal eight-voice mode, not in Stack or Split modes.

To edit a Program, simply turn any knob. See *Program Parameters* on page 10 for a detailed list of all parameters and their functions. After editing parameters, hit the Program switch to enable program changes again.

Compare Feature – While editing a Program, you can press the COMPARE switch to listen to the original version. If you press the switch again, the Prophet '08 returns to the edited version.

Saving a Program

To save a Program, press the WRITE switch and the following screen appears:

```
Write? P: xxx B: x
Hit: Yes or No
```

Press the +/YES switch to save the current Program, or -/NO (or the WRITE switch again) to cancel. To store in a different location, use PARAM 1 to select a new destination, and PARAM 2 for a different bank.

Note: If your Prophet '08 is Poly Chained to second Prophet '08, the program will also be saved in the chained unit.

Audition Destination Feature – While there is a write pending (see previous screen), you can press the COMPARE switch to hear the target Program destination before saving. Just be sure to turn COMPARE off again before you actually hit the +/YES switch to save.

Transposing the Keyboard Range

Use the UP and DOWN Transpose switches to transpose the keyboard up or down in octaves. The LED indicates the current keyboard transposition state. The transposition changes the MIDI note number of the keys, so MIDI notes sent will also be transposed.

Global Parameters

To edit the Global parameters, press the GLOBAL switch and Global page 1 is displayed. The PARAM 1 knob changes the parameter on the upper LCD line, and the PARAM 2 knob changes the lower parameter. The +/YES and -/NO switches select the other pages.

Note: If you hold the -/NO switch while you hit the +/YES switch, it will jump to the last page. Similarly, if you hold the +/YES switch when you hit the -/NO switch, it will jump to the first page.

Page 1:

Transpose:	xx
Fine Tune:	xx

Transpose: -12...+12 – Master Transpose control, 0 is centered. Steps in semitones.

Fine Tune: -50...+50 – Master Fine Tune control; 0 centered. Steps in cents (50 cents = 1/2 semitone).

Page 2:

MIDI Channel:	xx
Poly Chain:	xxx

MIDI Channel: ALL, 1...16 – Selects which MIDI channel to send and receive data, 1 to 16. All receives on all 16 channels.

Poly Chain: Off, Out, In – Use this to link two Prophet '08s to double polyphony by intelligently processing the keys hit and passing MIDI data through to the Poly Chain MIDI out jack, where it can be routed to a second Prophet '08. See *Using Poly Chain* on page 26 for details.

Note: If Poly Chain is set to Off, the Poly Chain MIDI out jack simply duplicates the MIDI out jack.

Page 3:

```
Clock:          xxxxxxxx
LocalControl:   xxx
```

Clock: see table – Selects the MIDI clock status.

Display	MIDI Clock Setting
Internal	MIDI clock is neither sent nor received
MIDI Out	MIDI clock is sent
MIDI In	MIDI clock is received
MidiIn/Out	MIDI clock is received and transmitted (use with Poly Chain)

Local Control: Off, On – Enables or disables the internal connection between the keyboard and panel controls and the synth electronics. This is useful with external sequencer operation.

Page 4:

```
MParam Send:   xxxx
MParam Rec:    xxxx
```

MIDI Parameter Send: NRPN, CC, Off – Changes to the values of the Prophet '08's front panel controls are transmitted via MIDI as Non-registered Parameter Number (NRPN) controllers or as Continuous Controllers (CC). Transmission of parameters can also be turned off. See *MIDI Implementation* on page 29 for details.

Note: NRPNs are the preferred method of parameter transmission, since they cover the complete range of all parameters, while CCs only handle the main parameters.

MIDI Parameter Receive: All, NRPN, CC, Off – Sets the method by which the Prophet '08 receives parameter changes via MIDI. As with transmission, NRPNs are the preferred method, though some controllers may only be able to send CCs.

Page 5:

```
MIDI Program:  xxx
MIDI Presse:   xxx
```

MIDI Program: Off, On – When On, the synth will respond to MIDI program changes received, and will transmit Program changes to MIDI Out.

MIDI Pressure: Off, On – When On, the synth will respond to MIDI pressure (aftertouch) received, and will transmit Keyboard Pressure to MIDI Out.

Page 6:

```
MIDI Control:   xxx
MIDI SysEx:    xxx
```

MIDI Control: Off, On – When On, the synth will respond to MIDI controllers, and will transmit controllers from the keyboard to the MIDI Out. Controllers include Pitch Wheel, Mod Wheel, Pedal, Breath, Volume, and Expression.

MIDI SysEx: Off, On – When On, the synth will respond to received MIDI SysEx messages, and will transmit them, when prompted, to the MIDI Out. See *Sysex Messages* on page 42 for details.

Page 7:

```
Pedal:          xxxxxxxx
DamperPolarity: x
```

Pedal: see table – Sets the destination for the Pedal/CV input. Note that this input is heavily filtered for clean operation, so there is a limit to the speed it will respond to changes.

Display	Pedal Routing
FootCtrl	Routed to the Foot Control Modulation
Breath	Routed to the Breath Control Modulation
Expressn	Routed to the Expression Modulation
Volume	Controls Master Volume
LpFilter	Routed to the low pass filter
LpF Half	Routed to the low pass filter, but with half the range

DamperPolarity: -, + – For compatibility with different sustain (Damper) pedals connected to the Sustain jack on the rear panel. Use + for normally open switches, and use – for normally closed switches.

Page 8:

```
Velocity Curve:  x
Pressure Curve:  x
```

Velocity Curve: 1..4 – Sets one of the four velocity curves for the keyboard; this gives you the ability to adjust the keyboard to your playing style.

Pressure Curve: 1...4 – Sets one of the four pressure curves for the keyboard; this gives you the ability to adjust the keyboard to your playing style.

Page 9:

```
LCD Contrast:   xxx
```

LCD Contrast: 1...100 – This sets the contrast level for the LCD.

Page 10:

```
Copy Bkx P:    xxx x  
To Bkx P:      xxx x
```

Program Copy Utility – Enables Layer A or B of a Program to be copied to Layer A or B of the same or a different Program. The top line displays the current Bank and Program. Use PARAM 1 to choose the Layer (A or B) to be copied. Use PARAM 2 to choose the destination Bank, Program, and Layer. Press WRITE to execute.

Page 11:

```
Dump (Hit Write)  
xxxxxxxxxxxxxxxx
```

MIDI Dumps: see table – Allows dumping of Programs in SysEx format via MIDI. Use PARAM 2 to select from the following options.

Display	MIDI Transmit Operation
Current Program	Send current program
Current Bank	Send all 128 programs in current bank
All Banks	Send all programs in both banks

When this page is active, the WRITE switch will blink. Press the switch to start transmission. This feature is handy for saving Programs on a computer in SysEx format, or for sending them to another Prophet '08 via a direct MIDI connection. The dumps include Program and Bank numbers, so when received, the programs will be stored in the same location.

Program Parameters

All Program parameters can be edited using the front panel controls. To edit a program, simply turn the desired parameter knob or hit the switch. The selected parameter and value appear in the LCD display. The top line of the LCD displays the programmed value for reference; the bottom line displays the edited value.

After a parameter is selected by turning its knob, you can also use the PARAM 2 knob to change the value of the selected parameter. Use the +/YES or -/NO switches to incrementally adjust parameter values.

Hit both +/YES or -/NO at the same time to set the parameter to zero.

Note: Hold the PROGRAM switch and hit the +/YES switch to set the Program to a basic patch, with most parameters set to zero. It does not save the sound in the current program; it only changes all the parameters.

Following are descriptions of each Prophet '08 Program parameter.

Oscillators

Each of the Prophet '08's eight voices has two analog oscillators. The basic controls for each oscillator are the same and are arranged in two horizontal rows, one for Oscillator 1 and another for Oscillator 2.

Note: There are additional modulation controls that can affect the pitch of Oscillators 1 and 2. These are covered in other sections of the Parameter definitions.

Osc Freq: C 0...C 10 – Sets the base oscillator frequency over a 10 octave range, from 8 Hz to 8KHz, stepping in semitones. C3 is middle C, the first octave is 0 (C0, C#0, and so on), the second octave is 1 (C1, C#1), and so on.

Fine: -50...+50 – Fine Tune control; 0 centered. Steps in cents (50 cents = 1/2 semitone).

Shape/PW: see table – Selects the analog waveshape as follows:

Display	Waveshape
Off	No output
Sawtooth	Sawtooth
Triangle	Triangle
Saw-Tri	Sawtooth – Triangle mix
Pulse xx	Pulse Wave, with pulse width ranging from minimum (0) to maximum (99). The pulse width will turn off at the two extremes – this allows some interesting modulation possibilities. A square wave will be at Pulse 50.

Glide: 0...127 – Sets the Oscillator Glide (portamento) rate. Glide can be set independently for each oscillator. Low settings are faster.

Note: See “Glide Mode” in *Miscellaneous Parameters* on page 15 for additional Glide settings.

Sync 2-> 1 – When enabled (lit), turns oscillator hard sync on. With sync on, whenever oscillator 2 resets, it will force oscillator 1 to reset for the classic hard sync sound.

Mix: 0...127 – Enables the outputs of Oscillators 1 and 2 to be mixed in varying amounts. A setting of 0 is equivalent to 100% Oscillator 1 and 0% Oscillator 2. A setting of 127 is just the opposite. A setting of 64 is essentially a 50-50 mix of both oscillators.

Noise

Level: 0...127 – Controls the volume of white noise mixed into the filter.

Lowpass Filter

Each of the Prophet '08's voices utilizes an analog lowpass filter coupled with a 4-stage (plus delay) ADSR envelope generator.

4 Pole – Selects either 2- or 4-pole operation for the filter. (The filter is in 4-pole mode when the 4 POLE switch is lit.)

Frequency: 0...164 – Sets the base filter cutoff frequency over more than 13 octaves.

Resonance: 0...127 – Sets the Resonance level of the filter. At high settings the filter will self-oscillate in 4-pole mode. If the filter does not oscillate, make sure the 4 POLE switch is on.

Env Amount: -127...+127 – Sets the amount of filter envelope routed to the cutoff frequency. This can be positive or negative, allowing inverted envelope control of the filter.

Velocity: 0...127 – Amount of key velocity controlling the level of the filter envelope.

Key Amount: 0...127 – Sets the amount of keyboard (MIDI note) to the filter cutoff. A setting of 64 will step the filter one semitone for each note, 32 would be half-semitones, and so on.

Audio Mod: 0...127 – Controls the amount of audio from Oscillator 1 used to modulate the filter cutoff frequency. For filter-only audio, set OSCILLATOR MIX to 127, OSCILLATOR 2 SHAPE to Off, and OSCILLATOR 1 SHAPE to the desired waveshape. This is useful for bell-like FM sounds. A wide range of sounds can also be made using AUDIO MOD with the oscillators routed normally through the filter.

Delay: 0...127 – Sets a delay between the time the filter envelope is triggered and when the Attack portion actually begins.

Attack: 0...127 – Sets the Attack time of the filter ADSR envelope generator.

Decay: 0...127 – Sets the Decay time.

Sustain: 0...127 – Sets the Sustain level.

Release: 0...127 – Sets the Release time.

Amplifier

VCA Level: 0...127 – Sets a base level for the VCA (Voltage Controlled Amplifier). This allows the VCA to be essentially bypassed, which is necessary for Programs that drone.

Note: If VCA LEVEL is on full, Envelope Amount has no effect. You normally want VCA LEVEL set to zero.

Env Amount: 0...127 – Sets the amount of VCA envelope to the VCA level.

Velocity: 0...127 – Sets the amount of keyboard velocity controlling the level of the VCA envelope.

Pan Spread: 0...127 – There is a pan circuit after the VCA that pans the audio in the stereo field individually per voice. With a PAN SPREAD of zero, all eight voices are panned in the middle (monophonic). As you turn up PAN SPREAD, the

audio in each voice is gradually moved away from the center by different amounts. Every other voice goes in a different direction. This provides a wide stereo field as you play.

Note: Any modulation to Pan will individually move each voice from its static position as set by the Pan Spread setting.

Delay: 0...127 – Sets a delay between the time the amplifier envelope is triggered and when the Attack portion actually begins.

Attack: 0...127 – Sets the Attack time of the VCA ADSR envelope generator.

Decay: 0...127 – Sets the Decay time.

Sustain: 0...127 – Sets the Sustain level.

Release: 0...127 – Sets the Release time.

Envelope 3

Destination: see table – Sets the Envelope 3 destination. See *Modulation Destinations* on page 27 for a list of possible destinations.

Amount: -127...+127 – Sets the amount of Envelope 3.

Velocity: 0...127 – Sets the amount of key velocity controlling the level of envelope 3.

Delay: 0...127 – Sets a delay between the time Envelope 3 is triggered and when the Attack portion actually begins.

Attack: 0...127 – Sets the Attack time of Envelope 3.

Decay: 0...127 – Sets the Decay time.

Sustain: 0...127 – Sets the Sustain level.

Release: 0...127 – Sets the Release time.

LFOs

The Prophet '08 has four identical Low Frequency Oscillators (LFOs), separate in each voice. To select a specific LFO for editing, press the appropriate switch, 1–4. Turning a knob will then adjust the parameters of the selected LFO.

Frequency: 0...150, sync – Sets the LFO frequency. Range 0–150 for un-synced LFO; speed ranges from slow (30 seconds) to very fast – at 90 (8 Hz, C-2) and above the speed steps in semitones, up to 150 (261 Hz, middle C).

Note: Some of the analog functions may not respond well to the fastest LFO speeds, due to speed limitations of the control voltages; but they will certainly generate some interesting sounds.

Above 150, the sync speeds are as follows:

Display	Timing Sync
32 Steps	Sequence speed divided by 32; i.e. one LFO cycle takes 32 steps
16 Steps	Sequence speed divided by 16
8 Steps	Sequence speed divided by 8
6 Steps	Sequence speed divided by 6
4 Steps	Sequence speed divided by 4
3 Steps	Sequence speed divided by 3
2 Steps	Sequence speed divided by 2
1.5 Step	Sequence speed divided by 1.5
1 Step	One cycle per step
2/3 Step	Two cycles every three steps
1/2 Step	Two cycles per step
1/3 Step	One cycles every three steps
1/4 Step	Four cycles per step
1/6 Step	Six cycles per step
1/8 Step	Eight cycles per step
1/16Step	Sixteen cycles per step

Shape: see table – Selects the LFO waveshape:

Display	LFO Shape
Triangle	Triangle
Rev Saw	Reverse Sawtooth
Sawtooth	Sawtooth
Square	Square Wave
Random	Random – changes once per cycle for sample-and-hold effects

Amount: 0...100 – Sets the amount of LFO routed to the destination.

Key Sync – When this switch is enabled (lit) the LFO is re-started each time a new note is played. Key Sync is set independently on each LFO .

Destination: see table – See *Modulation Destinations* on page 27 for a list of possible destinations.

Modulators

The Modulators section lets you configure the modulation routing and amount for the Prophet '08's four general-purpose modulation slots as well as for MIDI controllers (Mod Wheel, Key Pressure, Breath Control, Velocity, and Foot Controller).

Since each Prophet '08 mod source has a single destination, the four general purpose Mods provide a way to send a mod source (such as a sequence or LFO) to additional destinations, with a different amount. There are also additional mod sources available here, such as Noise, allowing a wide variety of possibilities.

To configure a general-purpose modulation slot, press the appropriate switch, 1–4, and use the SOURCE, DESTINATION and AMOUNT knobs to set the modulation as desired.

To configure modulation for a controller, press the MISC switch, select the desired controller with the SOURCE knob, then use the DESTINATION and AMOUNT knobs to set its modulation.

The Breath and Foot Controller parameters can be controlled by the Pedal/CV input on the rear panel. This gives you the ability to route them to different parameters on each Program for more flexible control. These are set in the Global section.

Source: see table – Selects a modulation source. See *Modulation Sources* on page 29 for possible sources.

Amount: -127...+127 – Sets the amount of modulation.

Destination: see table – Selects a modulation destination. See the Modulation Destination table on page 4 for a list of possible destinations.

Note: The Modulators can not be edited when the EDIT SEQUENCER switch is on.

Misc Parameters

The Miscellaneous Parameters module lets you configure a variety of parameters not found elsewhere. The parameter list is printed on the panel for easy reference. Use the SELECT knob to choose the desired parameter, and the VALUE knob, PARAM 2 knob, or the +/YES or -/NO switches to adjust the value.

Voice Volume: 0...127 – Sets the voice volume; usually used for matching volumes between Programs.

Note: There is enough gain in the synth voice that with some settings, some mild clipping distortion may be heard. If this happens, try lowering the VOICE VOLUME, and/or the VCA ENVELOPE AMOUNT (or VCA VELOCITY AMOUNT).

Name – The lower LCD line will display the name of the Program. The PARAM 1 knob selects characters for editing. (The active character blinks.) To change the character, use the PARAM 2 knob, the VALUE knob or the +/YES or -/NO switches.

Osc 1 Key: On, Off – Turns keyboard tracking on or off for Oscillator 1.

Osc 2 Key: On, Off – Turns keyboard tracking on or off for Oscillator 2.

Osc Slop: 0...5 – The amount of random oscillator frequency slop. The analog oscillators in the Prophet '08 are very accurate, and will not drift. This works great for accurate sounds, and allows precise de-tuning. The Oscillator Slop parameter allows subtle amounts of frequency drift. For larger amounts, use a random LFO or white noise mod.

Glide Mode: see table – Sets the way the oscillators respond to Glide settings.

Display	Glide mode
FixRate	The Glide rate is fixed. The time to transition from one note to another varies depending upon the interval between the notes.
FixRate A	The same, but Glide is only applied when played legato; that is, when a new note is hit while another note is still held. This only applies in Unison mode.
FixTime	The Glide time is fixed. The time to transition from one note to another is the same, regardless of the interval.
FixTime A	The same, but Glide only is applied when played legato; that is, when a new note is hit while another note is still held. This only applies in Unison mode.

Pitch Wheel Range: 0...12 – Sets the bend range, in semitones, of the pitch wheel. The setting is the range in the positive or negative direction. For example, a setting of 7 lets you bend a note up or down by a fifth.

Unison Mode: see table – Determines how the voices are allocated and detuned when Unison is turned on.

Display	Unison mode
1 Voice	Classic, two oscillator, monophonic mode. Sleek.
All Voices	All available voices are stacked in unison. Portly.
AllDetune1-3	All available voices are stacked in unison with three different levels of detuning. From fat to morbidly obese.

Unison Assign: see table – Determines how the Prophet '08 responds to the keyboard while in Unison mode.

Display	Keyboard mode
Low Note	Low note priority
LowRetrig	Low note priority, re-trigger envelopes
HighNote	High note priority
HighRetrig	High note priority, re-trigger envelopes
LastNote	Last note hit priority
LastRetrig	Last note hit priority, re-trigger envelopes

Seq Trigger: see table – Sets the triggering mode for the Gated Sequencer.

Display	Trigger mode
Normal	Sequence plays from the first step when a key is held, and resets to step 1 each time a new note is played. Each sequence step retriggers the envelopes.
No Reset	The same, but does not reset to step 1 on every note.
No Gate	The keyboard triggers the envelopes; the sequence steps do not.
NoGateNR	Same, but does not reset with subsequent notes.
Key Step	Striking a key advances the sequencer one step.

Arp Mode: see table – Sets the order in which the arpeggiator plays notes.

Display	Arpeggiator mode
Up	Arpeggiated notes play in ascending order.
Down	Arpeggiated notes play in descending order.
Up Down	Arpeggiated notes play in alternately ascending and descending order.
Assign	Arpeggiated notes play in the order in which they were struck.

Env 3 Repeat: On, Off – When on, loops the Delay, Attack, and Decay stages of Envelope 3 while a note is gated on.

Keyboard Modes

The Prophet '08 has three main keyboard modes, Normal, Stack, and Split. While playing in the different modes, if you look at the eight voice assignment LEDs on the right side of the front panel, you can easily see how the different voice assignment modes work.

Normal Mode – When the STACK A/B and SPLIT A/B switches are both off, the synth is in Normal mode, and will play all eight voices with the same sound. The sound is further selected by the EDIT LAYER B switch; when off, the eight voices will play the sound in Layer A, and when EDIT LAYER B is on, all eight voices play the sound in Layer B.

While in Normal mode, other switches like UNISON, ARPEGGIATOR, and GATED SEQUENCER will affect all eight voices the same.

Stack Mode – When the STACK A/B switch is on, hitting a single key will play two voices at the same time. One (on voices 1-4) will play the Layer A sound, and the second (on voices 5-8) will play the Layer B sound. This allows extra fat programs to be made, since you have four oscillators to work with, and twice the sound per key!

Use the EDIT LAYER B switch to alternate between the A and B layers as you adjust the parameters of a program. You never have to worry about any other program when using Stack and Split, since each program saves both the A and B layers, and they are not shared with other programs.

You can use the Copy utility (see “Program Copy Utility” in *Global Parameters* on page 9) to quickly copy layers between programs or from Layer A to Layer B (or vice-versa).

Note that each Layer can have different settings for UNISON, ARPEGGIATOR, and GATED SEQUENCER, which allows some very interesting combinations of sound control. The sequences and arpeggios can have different layer settings and speeds, for example, or you can combine a unison sound on one layer with a polyphonic sound on the other.

Split Mode – When the SPLIT A/B switch is on, hitting a key on the left side of the keyboard will play the Layer A sound (on voices 1-4), and hitting a key on the right side will play the Layer B sound (on voices 5-8). The specific key that starts the Layer B sound is called the Split Point, and is saved as part of the program. To change the Split Point, simply hold the desired key, and hit the SPLIT A/B switch (while Split is on).

As in Stack mode, the two layers can be completely different in Split mode.

Note: If you hold the EDIT LAYER B switch while in Stack or Split, the EDIT LAYER B switch will blink; this indicates you are now in Link Mode, which means that any parameter you change will update that parameter in both Layer A and Layer B. This can be handy while playing Stacked or Split programs in a live situation.

Gated Sequencer

The Prophet '08 features a 4 x 16 “analog-style” step sequencer that can generate four separate sequence tracks of up to 16 steps each. Individual sequencer tracks can be routed to any standard modulation destination (see the table on page 27). Using VCA Envelope as a destination, for example, varies the volume of each step; a destination of Filter or Filter Envelope Amount will produce different filter settings per step. Typically, however, at least one sequence is routed to an oscillator to control pitch.

The sequencer is a “gated” sequencer. That is, a note must be played, either from the keyboard or via MIDI, in order for the sequence to be heard and it will continue to play as long as the note is held (gated) .

The sequencer’s controls are indicated in orange type on the Prophet '08's front panel. The GATED SEQUENCER switch activates the sequencer. (Remember: Even when GATED SEQUENCER is on, you still have to play a note to hear the sequence.) The other sequencer controls do double duty as synthesizer controls. To enable them for sequencer control, turn on EDIT SEQUENCER in Modulators. With EDIT SEQUENCER on (lit), the knobs labeled 1 through 16 (in the Filter and Amp sections) are used to set the values for each of the sequence's 16 steps. Switches 1 through 4 in Modulators select the sequence track to be edited. To set the destination for a sequence track, press the desired track button and use MOD DEST to change the destination. See *Modulation Destinations* on page 27 for a list of possible destinations.

Note: The actual gate duration for each step is fixed at half the step time. Use the envelopes to generate notes of longer or shorter duration.

The sequencer shares the BPM and CLOCK DIVIDE controls with the arpeggiator.

BPM: 30...250 – Sets the programmed tempo for the sequencer in BPM (beats per minute).

Clock Divide: see table – Sets the note value for each sequence step relative to the BPM.

Display	Tempo	Timing Division
Half	BPM/2	Half note
Quartr	BPM	Quarter note
Eighth	BPM x 2	Eighth note
8 half	BPM x 2	Eighth note, half swing timing
8swing	BPM x 2	Eighth note, full swing timing
8 trip	BPM x 3	Eighth note triplets
16th	BPM x 4	Sixteenth note

16half	BPM x 4	Sixteenth note, half swing timing
16swing	BPM x 4	Sixteenth note, full swing timing
16trip	BPM x 6	Sixteenth note triplets
32nd	BPM x 8	Thirty-second note
32trip	BPM x 12	Thirty-second note triplets
64trip	BPM x 24	Sixty-fourth note triplets

Programming a Sequence

Each of the 16 steps in the sequence has its own knob in Edit Sequencer mode, which can be set to a value from 0-125. Turning a step knob past 125 sets the step to “Reset.” Reset is useful for creating a sequence of fewer than 16 steps. For example, if you want to create a four step sequence, set step 5 to Reset.

Note: Reset is also a handy way to shorten a sequence while you're editing. For example, if you're only tweaking the first 4 steps, temporarily set step 5 to Reset so the sequence doesn't have to play all the way through before you hear your edits.

In addition, in sequence track 1 you can program rests by setting a step value to Rest, just past Reset. On that step, no trigger is sent to the envelopes. Therefore, track 1 controls rests for tracks 2, 3, and 4, as well. Because of this, if tracks 2, 3, or 4 are different lengths, the rests will end up on different steps in those tracks as the sequence loops.

If you want all sequences to be the same length, make sure that the reset step is the same for all four sequences. If however, each sequence is a different length, the rests will follow sequence 1. In other words, the envelopes are always triggered from one sequence and can't be separately handled by each of the 4 sequences.

Using rests, resets, and different Clock Divides (half swing, swing, and so on) you can generate very complex sequences.

To program a sequence:

1. Press EDIT SEQUENCER to enter sequence edit mode.
2. Select the sequence track you want to program by pressing the appropriate switch (1, 2, 3, or 4 in Modulators).
3. Select the destination for that sequence using the MOD DEST. For example, to generate a sequence of notes, select OscAllFreq.

Note: When a sequence is routed to oscillator frequency, each knob increment equals half of a semitone. The LCD display will show the

relative note value, with a “+” after it to show when at a half-semitone step.

4. Turn the Step 1 knob to the desired value.
5. Repeat for each subsequent step in the sequence.
6. Press the GATED SEQUENCER switch and press a key to start the sequence.

Note: You may want to set the basic sequencer triggering mode in Misc Parameters:

Seq Trigger: see table – Sets the triggering mode for the Gated Sequencer.

Display	Trigger mode
Normal	Sequence plays from the first step when a note is gated on and resets to step 1 each time a new note is triggered. Each sequence step retriggers the envelopes.
No Reset	The same, but does not reset to step 1 on every note.
No Gate	The keyboard triggers the envelopes; the sequence steps do not.
NoGateNR	Same, but does not reset with subsequent notes.
Key Step	Striking a key advances the sequencer one step.

One very useful way to modulate a parameter in sync with a sequence is using LFOs with sync; LFO frequency runs from 0 to 150, after which you can select the sync settings. A setting of 16 Steps for LFO Frequency with a Triangle wave selected and routed to the filter will provide a clean filter sweep over a 16 step sequence, perfectly in sync! This is much easier (and smoother) than programming a filter sweep using sequence steps.

Note: If the sequencer does not seem to be working, check the GLOBAL settings to make sure Clock is set to Internal. If Clock is set to use an external clock source, the Prophet '08 must be receiving MIDI clock messages in order for the sequencer to run.

Arpeggiator

The Prophet '08's arpeggiator has four different operating modes, can latch the arpeggiated notes, and can be synced to a MIDI clock source.

Press ARPEGGIATOR to turn it on and hold down some keys. The held notes will play according to whatever the current Arpeggiator Mode setting is. The four modes are Up, Down, Up Down, and Assign. Use ARP MODE in Miscellaneous Parameters to change the mode. You can change the mode while the arpeggiator is playing.

Note: If the arpeggiator does not seem to be working, check the GLOBAL settings to make sure Clock is set to Internal. If Clock is set to use an external clock source, the Prophet '08 must be receiving MIDI clock messages in order for the arpeggiator to run.

To latch an arpeggio, briefly hold the ARPEGGIATOR switch down while an arpeggio is playing. You can then remove your hands from the keys and it will continue to play. (The ARPEGGIATOR switch blinks while an arpeggio is latched.) If you play additional notes, they will be added to the latched arpeggio. In Assign mode, additional notes will be appended to the end of the previously latched notes in the order they are played.

Note: You can only have any specific key play one time in the arpeggio. That is, if you are latching keys, and hit the same note twice, it will only latch the most recent hit.

The tempo and note value are determined by the BPM and CLOCK DIVIDE Controls.

BPM: 30...250 – Sets the programmed tempo for the sequencer in BPM (beats per minute).

Clock Divide: see table – Sets the note value for each sequence step relative to the BPM.

Display	Tempo	Timing Division
Half	BPM/2	Half note
Quartr	BPM	Quarter note
Eighth	BPM x 2	Eighth note
8 half	BPM x 2	Eighth note, half swing timing
8swing	BPM x 2	Eighth note, full swing timing
8 trip	BPM x 3	Eighth note triplets
16th	BPM x 4	Sixteenth note
16half	BPM x 4	Sixteenth note, half swing timing

16swing	BPM x 4	Sixteenth note, full swing timing
16trip	BPM x 6	Sixteenth note triplets
32nd	BPM x 8	Thirty-second note
32trip	BPM x 12	Thirty-second note triplets
64trip	BPM x 24	Sixty-fourth note triplets

To clear a latched arpeggio, press ARPEGGIATOR.

To stop the arpeggiator, press ARPEGGIATOR.

Using Poly Chain

Poly Chain links two Prophet '08s to double polyphony by intelligently processing the keys hit and passing MIDI data through to the Poly Chain MIDI out jack, where it can be routed to a second Prophet '08.

To Poly Chain two Prophet '08s:

1. Connect the Poly Chain MIDI output on the back of the master Prophet '08 to the MIDI In of the slave Prophet '08.
2. On the master, in Global select the Poly Chain screen, and set it to Out.
3. On the slave, set Poly Chain to In.

You can now virtually ignore the slave unit, since the controls on the master will control both units as if they were a single 16-voice synth. This includes saving a Program; if you save an edited program on the master, it will also save the program on the slave.

Note: If using an external MIDI clock, set the master MIDI clock to MIDI In/Out, and the Slave MIDI clock to MIDI In.

If Poly Chain is set to Off, the Poly Chain MIDI out jack simply duplicates the MIDI out jack.

Modulation Destinations

Display	Destination
Off	No destination selected
Osc 1 Freq	Oscillator 1 Frequency
Osc 2 Freq	Oscillator 2 Frequency
Osc Mix	Oscillator Mix
NoiseLevel	Noise Level
Osc1 PulsW	Oscillator 1 Pulse Width
Osc2 PulsW	Oscillator 2 Pulse Width
Osc All PW	All Oscillators Pulse Width
Low Pass	Lowpass Filter Frequency
Resonance	Resonance
Fil FM	Audio Mod Amount
UCA Level	VCA Amount
Output Pan	Pan
LFO 1 Freq	LFO 1 Frequency
LFO 2 Freq	LFO 2 Frequency
LFO 3 Freq	LFO 3 Frequency
LFO 4 Freq	LFO 4 Frequency
LFOAllFreq	All LFO Frequencies
LFO 1 Amt	LFO 1 Amount
LFO 2 Amt	LFO 2 Amount
LFO 3 Amt	LFO 3 Amount
LFO 4 Amt	LFO 4 Amount
LFOAll Amt	All LFO Amounts
Env 1 Amt	Envelope 1 Amount (Level)
Env 2 Amt	Envelope 2 Amount (Level)
Env 3 Amt	Envelope 3 Amount (Level)
EnvAll Amt	All Envelope Amounts (Levels)
Env1Attack	Envelope 1 Attack Rate
Env2Attack	Envelope 2 Attack Rate
Env3Attack	Envelope 3 Attack Rate
EnvAll Att	All Envelope Attack Rates
Env1 Decay	Envelope 1 Decay Rate
Env2 Decay	Envelope 2 Decay Rate
Env3 Decay	Envelope 3 Decay Rate
EnvAll Dec	All Envelope Decay Rates
Env1Releas	Envelope 1 Release Rate
Env2Releas	Envelope 2 Release Rate
Env3Releas	Envelope 3 Release Rate

EnvAll Rel	All Envelope Release Rates
Mod 1 Amt	Modulator 1 Amount
Mod 2 Amt	Modulator 2 Amount
Mod 3 Amt	Modulator 3 Amount
Mod 4 Amt	Modulator 4 Amount

Modulation Sources

Display	Source
Off	No source selected
Sequence1	Sequence 1
Sequence2	Sequence 2
Sequence3	Sequence 3
Sequence4	Sequence 4
LFO 1	LFO 1
LFO 2	LFO 2
LFO 3	LFO 3
LFO 4	LFO 4
FilterEnv	Filter Envelope
VCA Env	Amp (VCA) Envelope
Envelope3	Envelope 3
PitchBend	Pitch Bend
Mod Wheel	Mod Wheel
Pressure	Pressure (Aftertouch)
MidBreath	MIDI – Breath Controller
Midi Foot	MIDI – Foot Controller
Midi Exp	MIDI – Expression
Velocity	Keyboard Note Velocity
KeyNumber	Keyboard Note Number
Noise	Noise

MIDI Implementation

The Prophet '08 receives MIDI data according to the mode controls under GLOBAL. In addition, there is interaction between some of the Program parameters that determine the overall response of Prophet '08 to MIDI data.

Note: that the Poly Chain output has a number of additional MIDI messages that are sent when Poly Chain is enabled. These are not included in the MIDI summary below, since they are specific to use in Poly Chain mode only.

Following are the Global parameters that affect response to MIDI:

MIDI Channel: ALL, 1...16 – Selects the MIDI channel to send and receive data, 1 to 16. All receives on any channel.

Poly Chain: Off, Out, In – Use this to link two Prophet '08s to double polyphony by intelligently processing the keys hit and passing MIDI data through to the Poly Chain MIDI out jack, where it can be routed to a second Prophet '08.

Local Control: Off, On – Enables or disables the internal connection between the keyboard and panel controls and the synth electronics.

Clock: see table – Selects the MIDI clock status, and enables External sequencer triggers, as follows:

Display	MIDI Clock Setting
Internal	MIDI clock is neither sent nor received
MIDI Out	MIDI clock is sent
MIDI In	MIDI clock is received
MIDIIn/Out	MIDI clock is received and transmitted (use with Poly Chain)

MIDI Parameter Send: NRPN, CC, Off – Changes to the values of the Prophet '08's front panel controls are transmitted via MIDI as Non-registered Parameter Number (NRPN) controllers or as Continuous Controllers (CC). Transmission of parameters can also be turned off.

MIDI Parameter Receive: All, NRPN, CC, Off – Sets the method by which the Prophet '08 receives parameter changes via MIDI. As with transmission, NRPNs are the preferred method, though some controllers may only be able to send CCs.

MIDI Program: Off, On – When On, the synth will respond to MIDI program changes received, and will transmit Program changes to MIDI Out.

MIDI Pressure: Off, On – When On, the synth will respond to MIDI pressure (aftertouch) received, and will transmit Keyboard Pressure to MIDI Out.

MIDI Control: Off, On – When On, the synth will respond to MIDI controllers, and will transmit controllers from the keyboard to the MIDI Out. Controllers include Pitch Wheel, Mod Wheel, Pedal, Breath, Volume, and Expression.

MIDI SysEx: Off, On – When On, the synth will respond to received MIDI SysEx messages, and will transmit them, when prompted, to the MIDI Out.

MIDI Messages

System Real-time Messages

Status	Description
1111 1000	MIDI Timing Clock

Received Channel Messages

Status	Second	Third	Description
1000 nnnn	0kkkkkkk	0vvvvvvv	Note Off. Velocity is ignored
1001 nnnn	0kkkkkkk	0vvvvvvv	Note On. Note off if vvvvvvv = 0
1010 nnnn	0kkkkkkk	0vvvvvvv	Polyphonic Key Pressure
1011 nnnn	0vvvvvvv	0vvvvvvv	Control Change; see “Received Controller Messages” table following
1100 nnnn	0ppppppp		Program change, 0 – 127 for Programs 1 – 128 within current Bank
1101 nnnn	0vvvvvvv		Channel Pressure
1110 nnnn	0vvvvvvv	0vvvvvvv	Pitch Bend LS Byte then MS Byte

Notes: 0kkkkkkk Note number 0 – 127
 nnnn Channel number 0 to 15 (MIDI channel 1-16). Ignored if MIDI channel set to ALL
 0vvvvvvv Value

Received Controller Messages

Status	Second	Third	Description
1011 nnnn	1	0vvvvvvv	Mod Wheel – directly assignable controller
1011 nnnn	2	0vvvvvvv	Breath Controller – directly assignable controller
1011 nnnn	4	0vvvvvvv	Foot Controller – directly assignable controller
1011 nnnn	7	0vvvvvvv	Volume – Combined with Master Volume and Voice Volume
1011 nnnn	74	0vvvvvvv	Brightness – Added to lowpass filter cutoff frequency
1011 nnnn	11	0vvvvvvv	Expression Controller – directly assignable controller

1011 nnnn	32	0vvvvvv	Bank Select – 0 and 1 select banks 1 and 2; others ignored
1011 nnnn	64	0vvvvvv	Damper pedal – holds envelopes in Sustain if 0100 0000 or higher
1011 nnnn	123	0vvvvvv	All Notes Off – clear all MIDI notes
1011 nnnn	121	0vvvvvv	Reset All Controllers – clears all MIDI controllers to 0, MIDI volume to maximum

See sections below for additional Continuous Controller (CC) and Non-registered Parameter Number (NRPN) messages received.

Transmitted Channel Messages

Status	Second	Third	Description
1000 nnnn	0kkkkkkk	0000000	Note Off.
1001 nnnn	0kkkkkkk	0vvvvvvv	Note On.
1011 nnnn	0vvvvvvv	0vvvvvvv	Control Change; see “Transmitted Controller Messages” table following
1100 nnnn	0ppppppp		Program change, 0 – 127 for Programs 1 – 128 within current Bank
1101 nnnn	0vvvvvvv		Channel Pressure
1110 nnnn	0vvvvvvv	0vvvvvvv	Pitch Bend LS Byte then MS Byte

Notes: 0kkkkkkk Note number 0 – 127
 nnnn Channel number 0 to 15 (MIDI channel 1-16). Ignored if MIDI channel set to ALL
 0vvvvvvv Value

Transmitted Controller Messages

Status	Second	Third	Description
1011 nnnn	0000 0001	0vvvvvvv	Mod Wheel
1011 nnnn	0000 0010	0vvvvvvv	Breath Controller – when assigned to Pedal/CV
1011 nnnn	0000 0100	0vvvvvvv	Foot Controller – when assigned to Pedal/CV
1011 nnnn	0000 0111	0vvvvvvv	Volume – when assigned to Pedal/CV
1011 nnnn	0100 1010	0vvvvvvv	Brightness – when assigned to Pedal/CV
1011 nnnn	0000 1101	0vvvvvvv	Expression – when assigned to Pedal/CV
1011 nnnn	0010 0000	0vvvvvvv	Bank Select – 0 to 2
1011 nnnn	0100 0000	0vvvvvvv	Damper pedal – sends 0 if off, 0100 0000 when on

See sections below for additional Continuous Controller (CC) and Non-registered Parameter Number (NRPN) messages transmitted.

Additional Continuous Controllers (CCs) Transmitted/Received

The following table details how CCs are mapped onto the Prophet ‘08’s controls. They are transmitted when MIDI Parameter Send is set to CC in Global, and recognized when received when MIDI Parameter Receive is set to either CC or All in Global.

Parameter	CC#
Osc 1 Frequency	20
Osc 1 Freq Fine	21
Osc 1 Shape	22
Glide 1	23
Osc 2 Frequency	24
Osc 2 Freq Fine	25
Osc 2 Shape	26
Glide 2	27
Osc Mix	28
Noise Level	29
Filter Frequency	102
Resonance	103
Filter Key Amt	104
Filter Audio Mod	105
Filter Env Amt	106
Filter Env Vel Amt	107
Filter Delay	108
Filter Attack	109
Filter Decay	110
Filter Sustain	111
Filter Release	112

Parameter	CC#
VCA Level	113
Pan Spread	114
Amp Env Amt	115
Amp Velocity Amt	116
Amp Delay	117
Amp Attack	118
Amp Decay	119
Amp Sustain	75
Amp Release	76
Env 3 Destination	85
Env 3 Amt	86
Env 3 Velocity Amt	87
Env 3 Delay	88
Env 3 Attack	89
Env 3 Decay	90
Env 3 Sustain	77
Env 3 Release	78
BPM	14
Clock Divide	15

NRPN Messages

The Non-Registered Parameter Number (NRPN) MIDI messages are used to transmit and receive both global and program parameters. They are transmitted when MIDI Parameter Send is set to NRPN in Global, and recognized when received when MIDI Parameter Receive is set to either NRPN or All in Global.

The messages are handled in standard MIDI format using the NRPN CC commands in running status byte format. Below is the format used for transmitting a NRPN parameter:

Transmitted NRPN Messages

Status	Description
1011 nnnn	Control Change
0110 0011	NRPN parameter number MSB CC
0vvv vvvv	Parameter Number MSB
0110 0010	NRPN parameter number LSB CC

0vvv vvvv	Parameter Number LSB
0000 0110	NRPN parameter value MSB CC
0vvv vvvv	Parameter value MSB
0010 0110	NRPN parameter value LSB CC
0vvv vvvv	Parameter value LSB

The parameter number can be found in the two tables below, one for Global parameters, and the other for Program parameters. The parameter numbers and the parameter values are broken into two 7-bit bytes for MIDI transmission; the LSB has the seven least-significant bits, and the MSB has the seven most-significant bits, though in most cases the MSB will be zero or one, and never more than two.

When receiving an NRPN, all messages do not necessarily need to be transmitted, since the synth will track the most recent NRPN number, though it is usually good practice to send the entire message above.

Once an NRPN is selected, the synth will also respond to NRPN Data Increment and Decrement commands, which some controllers utilize. Finally, it responds to one RPN (Registered Parameter Number) command, the RPN/NRPN Reset command, which can be handy for resetting the currently selected parameter to a known state.

Received NRPN Messages

Status	Second	Third	Description
1011 nnnn	0110 0011	0vvvvvvv	NRPN parameter number MSB CC
1011 nnnn	0110 0010	0vvvvvvv	NRPN parameter number LSB CC
1011 nnnn	0000 0110	0vvvvvvv	NRPN parameter value MSB CC
1011 nnnn	0010 0110	0vvvvvvv	NRPN parameter value LSB CC
1011 nnnn	0110 0000	0xxxxxxx	NRPN parameter value Increment
1011 nnnn	0110 0001	0xxxxxxx	NRPN parameter value Decrement
1011 nnnn	0010 0101	01111111	RPN parameter number MSB CC – Reset NRPN parameter number (when both MSB and LSB received)
1011 nnnn	0010 0100	01111111	RPN parameter number LSB CC – Reset NRPN parameter number (when both MSB and LSB received)

Global Parameter Data

The following table shows the Global data that is sent and received on global parameter dumps, and the corresponding NRPN number when sent/received individually.

Param	NRPN	Range	Description
0	x	0 – 127	Program Number 1 – 128
1	x	0 – 1	Bank Number 1 – 2
2	384	0 – 24	Master Transpose; 0 = -12 semitones (1 octave), 12 = 0 (no transpose), and 24 = +12 semitones.
3	385	0 – 100	Master Fine Tune; 0 = -50 cents, 50 = 0 (centered), 100 = + 50 cents
4	386	0 – 16	MIDI Channel; if = 0, data received on all MIDI channels. Otherwise = channel number 1 – 16.
5	387	0 - 2	Poly Chain 0 No Chaining 1 Poly Chain Out 2 Poly Chain In
6	388	0 – 3	MIDI clock select 0 Use Internal clock, don't send MIDI clock 1 Use Internal clock, send MIDI clock 2 Use MIDI clock In 3 Use MIDI clock In, and retransmit MIDI clock out
7	389	0 - 1	Local Control Off/On
8	390	0 - 2	Parameter Send: 0 NRPN 1 CC 2 Off
9	391	0 - 3	Parameter Receive: 0 All 1 NRPN only 2 CC only 3 Off
10	392	0 - 1	MIDI Program Send/Receive Off/On
11	393	0 - 1	MIDI Pressure Send/Receive Off/On
12	394	0 - 1	MIDI Controller Send/Receive Off/On
13	395	0 - 1	MIDI Sysex Send/Receive Off/On
14	396	0 - 5	Pedal Destination: 0 Foot Control 1 Breath Control 2 Expression 3 Volume 4 Filter Frequency 5 Filter Frequency / 2
15	397	0 - 1	Damper Polarity; 0 = normally open, 1 = normally closed

16	398	0 - 3	Velocity Curve
17	399	0 - 3	Pressure Curve

Program Parameter Data

The following table lists the Prophet '08's voice parameters. These are used for the NRPNs and in the program and edit buffer dumps. Since most parameters are present in both the A and B layers, they are listed side-by-side.

A	B	Range	Description
0	200	0 – 120	Oscillator 1 Frequency, 0 – 120 in semitones (10 octave range)
1	201	0 – 100	Oscillator 1 Fine Tune; 0 = -50 cents, 50 = 0 (centered), 100 = + 50 cents
2	202	0-103	Oscillator 1 Shape 0 Oscillator Off 1 Sawtooth 2 Triangle 3 Sawtooth/triangle mix 4 – 103 Pulse Wave, Pulse width 0 – 99
3	203	0 - 127	Oscillator 1 Glide
4	204	0 - 1	Oscillator 1 Keyboard Off/On
5	205	0 – 120	Oscillator 2 Frequency, 0 – 120 in semitones (10 octave range)
6	206	0 – 100	Oscillator 2 Fine Tune; 0 = -50 cents, 50 = 0 (centered), 100 = + 50 cents
7	207	0-103	Oscillator 2 Shape 0 Oscillator Off 1 Sawtooth 2 Triangle 3 Sawtooth/triangle mix 4 – 103 Pulse Wave, Pulse width 0 – 99
8	208	0 - 127	Oscillator 2 Glide
9	209	0 - 1	Oscillator 2 Keyboard Off/On
10	210	0 - 1	Sync off/on
11	211	0 - 3	Glide Mode: 0 fixed rate 1 fixed rate auto 2 fixed time 3 fixed time auto
12	212	0 - 5	Oscillator Slop
13	213	0 - 127	Oscillator 1 - 2 Mix
14	214	0 - 127	Noise Level
15	215	0 - 164	Filter Frequency, steps in semitones
16	216	0 - 127	Resonance
17	217	0 - 127	Filter Keyboard Amount
18	218	0 - 127	Filter Audio Modulation

19	219	0 - 1	Filter Poles 0: 2-pole; 1: 4-pole
20	220	0 - 254	Filter Envelope Amount; -127 to +127
21	221	0 - 127	Filter Envelope Velocity Amount
22	222	0 - 127	Filter Envelope Delay
23	223	0 - 127	Filter Envelope Attack
24	224	0 - 127	Filter Envelope Decay
25	225	0 - 127	Filter Envelope Sustain
26	226	0 - 127	Filter Envelope Release
27	227	0 - 127	VCA Initial Level
28	228	0 - 127	Output Spread
29	229	0 - 127	Voice Volume
30	230	0 - 127	VCA Envelope Amount
31	231	0 - 127	VCA Envelope Velocity Amount
32	232	0 - 127	VCA Envelope Delay
33	233	0 - 127	VCA Envelope Attack
34	234	0 - 127	VCA Envelope Decay
35	235	0 - 127	VCA Envelope Sustain
36	236	0 - 127	VCA Envelope Release
37	237	0 - 166	LFO 1 Frequency; 0 – 150 unsynced frequencies 151 Sequence speed divided by 32 152 Sequence speed divided by 16 153 Sequence speed divided by 8 154 Sequence speed divided by 6 155 Sequence speed divided by 4 156 Sequence speed divided by 3 157 Sequence speed divided by 2 158 Sequence speed divided by 1.5 159 One cycle per step 160 Two cycles per three steps 161 Two cycles per step 162 One cycles per three steps 163 Four cycles per step 164 Six cycles per step 165 Eight cycles per step 166 Sixteen cycles per step
38	238	0 - 4	LFO 1 Shape 0 Triangle 1 Reverse Sawtooth 2 Sawtooth 3 Pulse (square) 4 Random
39	239	0 - 127	LFO 1 Amount
40	240	0 - 43	LFO 1 Mod Destination; See Modulation Destination list below
41	241	0 - 1	LFO 1 Key Sync Off/On
42	242	0 - 166	LFO 2 Frequency; same as LFO 1
43	243	0 - 4	LFO 2 Shape; same as LFO 1
44	244	0 - 127	LFO 2 Amount

45	245	0 - 43	LFO 2 Mod Destination; See Modulation Destination list below
46	246	0 - 1	LFO 2 Key Sync Off/On
47	247	0 - 166	LFO 3 Frequency; same as LFO 1
48	248	0 - 4	LFO 3 Shape; same as LFO 1
49	249	0 - 127	LFO 3 Amount
50	250	0 - 43	LFO 3 Mod Destination; See Modulation Destination list below
51	251	0 - 1	LFO 3 Key Sync Off/On
52	252	0 - 166	LFO 4 Frequency; same as LFO 1
53	253	0 - 4	LFO 4 Shape; same as LFO 1
54	254	0 - 127	LFO 4 Amount
55	255	0 - 43	LFO 4 Mod Destination; See Modulation Destination list below
56	256	0 - 1	LFO 4 Key Sync Off/On
57	257	0 - 43	Envelope 3 Mod Destination; See Mod Destination list below
58	258	0 - 254	Envelope 3 Amount; -127 to +127
59	259	0 - 127	Envelope 3 Velocity Amount
60	260	0 - 127	Envelope 3 Delay
61	261	0 - 127	Envelope 3 Attack
62	262	0 - 127	Envelope 3 Decay
63	263	0 - 127	Envelope 3 Sustain
64	264	0 - 127	Envelope 3 Release
65	265	0 - 20	Mod 1 Source; See Modulation Source list below
66	266	0 - 254	Mod 1 Amount; -127 to +127
67	267	0 - 43	Mod 1 Destination; See Modulation Destination list below
68	268	0 - 20	Mod 2 Source; See Modulation Source list below
69	269	0 - 254	Mod 2 Amount; -127 to +127
70	270	0 - 43	Mod 2 Destination; See Modulation Destination list below
71	271	0 - 20	Mod 3 Source; See Modulation Source list below
72	272	0 - 254	Mod3 Amount; -127 to +127
73	273	0 - 43	Mod 3 Destination; See Modulation Destination list below
74	274	0 - 20	Mod 4 Source; See Modulation Source list below
75	275	0 - 254	Mod 4 Amount; -127 to +127
76	276	0 - 43	Mod 4 Destination; See Modulation Destination list below
77	277	0 - 43	Sequence 1 Destination; See ModDestination list below
78	278	0 - 43	Sequence 2 Destination; See ModDestination list below

79	279	0 - 43	Sequence 3 Destination; See ModDestination list below
80	280	0 - 43	Sequence 4 Destination; See ModDestination list below
81	281	0 - 254	Mod Wheel Amount; -127 to +127
82	282	0 - 43	Mod Wheel Destination; See ModDestination list below
83	283	0 - 254	Pressure Amount; -127 to +127
84	284	0 - 43	Pressure Destination; See ModDestination list below
85	285	0 - 254	Breath Amount; -127 to +127
86	286	0 - 43	Breath Destination; See ModDestination list below
87	287	0 - 254	Velocity Amount; -127 to +127
88	288	0 - 43	Velocity Destination; See ModDestination list below
89	289	0 - 254	Foot Control Amount; -127 to +127
90	290	0 - 43	Foot Control Destination; See ModDestination list below
91	291	30 - 250	BPM tempo
92	292	0 - 12	Clock Divide: Half Note Quarter Note Eighth Note Eighth Note half swing Eighth Note full swing Eighth Note triplets Sixteenth Note Sixteenth Note half swing Sixteenth Note full swing Sixteenth Note triplets Thirty-second Notes Thirty-second Notes triplets Sixty-Fourth note triplets
93	293	0 - 12	Pitch Bend Range
94	294	0 - 4	Sequencer Trigger: 0 Normal 1 Normal, no reset 2 No gate 3 No gate/no reset 4 key step
95	295	0 - 5	Key Mode: 0 Low note priority 1 Low note priority with re-trigger 2 High note priority 3 High note priority with re-trigger 4 Last note hit priority 5 Last note hit priority with re-trigger

96	296	0 - 4	Unison Mode: 0 1 voice 1 8 voice 2 8 voice detune1 3 8 voice detune2 4 8 voice detune3
97	297	0 - 3	Arpeggiator Mode: 0 Up 1 Down 2 Up/Down, 3 Assign
98	298	0 - 1	Envelope 3 Repeat Mode; off/on
99	299	0 - 1	Unison; off/on
100	300	0 - 1	Arpeggiator; off/on
101	301	0 - 1	Gated Sequencer; off/on
102-117	302-317	x	Unused
118	X	0 - 127	Split Point; 60 = C3
119	X	0 - 2	Keyboard Mode: 0 Normal 8 Voice 1 Stack 2 Split
120-135	320-335	0 - 127	Sequence Track1, steps 1 – 16 0 to 125: Normal sequence step value 126 Reset 127 Rest
136-151	336-351	0 - 126	Sequence Track 2, steps 1 – 16 0 to 125: Normal sequence step value 126 Reset
152-167	352-367	0 - 126	Sequence Track 3, steps 1 – 16 0 to 125: Normal sequence step value 126 Reset
168-183	368-383	0 - 126	Sequence Track 4, steps 1 – 16 0 to 125: Normal sequence step value 126 Reset
184-199	X	32 - 127	Name characters 1 – 16, in ASCII format

The following tables list the values used with the program parameters to specify modulation destinations and sources.

Mod Destinations	Value
Off	0
Osc 1 Freq	1
Osc 2 Freq	2
Osc 1 and 2 Freq	3
Osc Mix	4

Noise Level	5
Osc 1 Pulse Width	6
Osc 2 Pulse Width	7
Osc 1 and 2 Pulse Width	8
Filter Frequency	9
Resonance	10
Filter Audio Mod Amt	11
VCA Level	12
Pan Spread	13
LFO 1 Freq	14
LFO 2 Freq	15
LFO 3 Freq	16
LFO 4 Freq	17
All LFO Freq	18
LFO 1 Amt	19
LFO 2 Amt	20
LFO 3 Amt	21
LFO 3 Amt	22
All LFO Amt	23
Filter Env Amt	24
Amp Env Amt	25
Env 3 Amt	26
All Env Amounts	27
Env 1 Attack	28
Env 2 Attack	29
Env 3 Attack	30
All Env Attacks	31
Env 1 Decay	32
Env 2 Decay	33
Env 3 Decay	34
All Env Decays	35
Env 1 Release	36
Env 2 Release	37
Env 3 Release	38
All Env Releases	39
Mod 1 Amt	40
Mod 2 Amt	41
Mod 3 Amt	42
Mod 4 Amt	43

Mod Sources	Value
Off	0
Sequence Track 1	1
Sequence Track 2	2
Sequence Track 3	3

Sequence Track 4	4
LFO 1	5
LFO 2	6
LFO 3	7
LFO 4	8
Filter Envelope	9
Amp Envelope	10
Envelope 3	11
Pitch Bend	12
Mod Wheel	13
Pressure	14
MIDI Breath	15
MIDI Foot	16
MIDI Expression	17
Velocity	18
Note Number	19
Noise	20

Sysex Messages

Universal System Exclusive Message (Device Inquiry)

Status	Description
1111 0000	System Exclusive (SysEx)
0111 1110	Non-realtime message
0vvv vvvv	If MIDI channel is set to 1-16, 0vvvvvvv must match (unless MIDI Channel = ALL); always responds if 0vvvvvvv = 0111 1111.
0000 0110	Inquiry Message
0000 0001	Inquiry Request
1111 0111	End of Exclusive (EOX)

Prophet '08 responds with:

Status	Description
1111 0000	System Exclusive (SysEx)
0111 1110	Non-realtime message
0vvv vvvv	If MIDI Channel = ALL, 0vvvvvvv = 0111 1111. Otherwise 0vvvvvvv = Channel Number 0-15.
0000 0110	Inquiry Message
0000 0010	Inquiry Reply
0000 0001	DSI ID
0010 0011	Prophet '08 ID (Family LS)
0000 0000	Family MS
0000 0000	Family Member LS
0000 0000	Family Member MS
0jjj nnnn	Main Software version: jjj – Major rev; nnnn – Minor Rev

0vvv vvvv	Voice Software version LS
0vvv vvvv	Voice MS
1111 0111	End of Exclusive (EOX)

Request Program Dump

Status	Description
1111 0000	System Exclusive (SysEx)
0000 0001	DSI ID
0010 0011	Prophet '08 ID
0000 0101	Request Program Transmit
0000 00vv	Bank Number, 0 – 1
0vvv vvvv	Program Number, 0 – 127
1111 0111	End of Exclusive (EOX)

The Prophet '08 will respond by sending out the Program Data in the format described below in *Program Data Dump*.

Request Program Edit Buffer Dump

Status	Description
1111 0000	System Exclusive (SysEx)
0000 0001	DSI ID
0010 0011	Prophet '08 ID
0000 0110	Request Program Edit Buffer Transmit
1111 0111	End of Exclusive (EOX)

Prophet '08 will respond by sending out the current Program edit buffer in the format described below in *Program Edit Buffer Data Dump*.

Request Global Parameter Dump

Status	Description
1111 0000	System Exclusive (SysEx)
0000 0001	DSI ID
0010 0011	Prophet '08 ID
0000 1110	Request Global Parameter Transmit
1111 0111	End of Exclusive (EOX)

Prophet '08 will respond by sending out the current edit buffer in the format described below in *Global Parameters Data Dump*.

Program Data Dump

Status	Description
1111 0000	System Exclusive (SysEx)
0000 0001	DSI ID
0010 0011	Prophet '08 ID
0000 0010	Program Data
0000 00vv	Bank Number, 0 – 1
0vvv vvvv	Program Number, 0 – 127
0vvv vvvv	439 bytes in “packed MS bit” format (see page 45.)
1111 0111	End of Exclusive (EOX)

Program Edit Buffer Data Dump

Status	Description
1111 0000	System Exclusive (SysEx)
0000 0001	DSI ID
0010 0011	Prophet '08 ID
0000 0011	Edit Buffer Data
0vvv vvvv	439 bytes in “packed MS bit” format (see page 45).
1111 0111	End of Exclusive (EOX)

Global Parameters Data Dump

Status	Description
1111 0000	System Exclusive (SysEx)
0000 0001	DSI ID
0010 0011	Prophet '08 ID
0000 0001	File Version
0000 1111	Main Parameter Data
0vvv vvvv	34 nibbles (LS then MS) for 17 Global parameters. Global Parameters are listed starting on page 35.
1111 0111	End of Exclusive (EOX)

Packed Data Format

Data is packed in 8 byte “packets”, with the MS bit stripped from 7 parameter bytes, and packed into an eighth byte, which is sent at the start of the 8 byte packet.

Example:

Input Data

```
1 A7 A6 A5 A4 A3 A2 A1 A0
2 B7 B6 B5 B4 B3 B2 B1 B0
3 C7 C6 C5 C4 C3 C2 C1 C0
4 D7 D6 D5 D4 D3 D2 D1 D0
5 E7 E6 E5 E4 E3 E2 E1 E0
6 F7 E6 E5 E4 E3 E2 E1 E0
7 G7 G6 G5 G4 G3 G2 G1 G0
```

Packed MIDI data

```
1 00 G7 F7 E7 D7 C7 B7 A7
2 00 A6 A5 A4 A3 A2 A1 A0
3 00 B6 B5 B4 B3 B2 B1 B0
4 00 C6 C5 C4 C3 C2 C1 C0
5 00 D6 D5 D4 D3 D2 D1 D0
6 00 E6 E5 E4 E3 E2 E1 E0
7 00 E6 E5 E4 E3 E2 E1 E0
8 00 G6 G5 G4 G3 G2 G1 G0
```

This explains why it takes 439 MIDI bytes to transmit 384 Program data bytes.

Hidden Functions

Hold the PROGRAM switch and hit the +/YES switch to set the Program to a basic patch, with most parameters set to zero. It does not save the sound in the current program; it only changes all the parameters.

If you hold the EDIT LAYER B switch while in Stack or Split, the EDIT LAYER B switch will blink; this indicates you are now in Link Mode, which means that any parameter you change will update that parameter in both Layer A and Layer B. This can be handy while playing Stacked or Split programs in a live situation.

The following hidden functions are listed for information only; you should not normally have to use these. To use these, hold the GLOBAL switch and hit:

LFO 1 Switch – Displays the software versions for the Main and Voice processors.

LFO 2 Switch – Calibrates the low pass filters and analog oscillator waveshapes.

LFO 3 Switch – Resets all Global parameters to factory settings

To calibrate the pitch and mod wheels:

1. Turn the mod wheel all the way off (down), and while also holding the pitch wheel off, hold the Global switch and hit the Mod 1 switch.
2. Return the pitch wheel to center, and hold Global and hit the Mod 2 switch.
3. Move the Mod wheel all the way on (up), and while also holding the pitch wheel all the way on, hold Global and hit the Mod 3 switch.

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