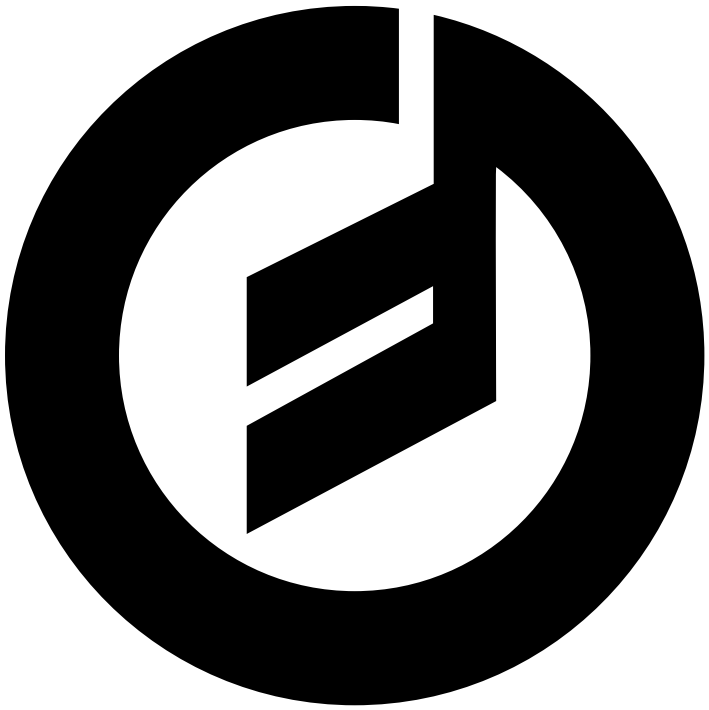
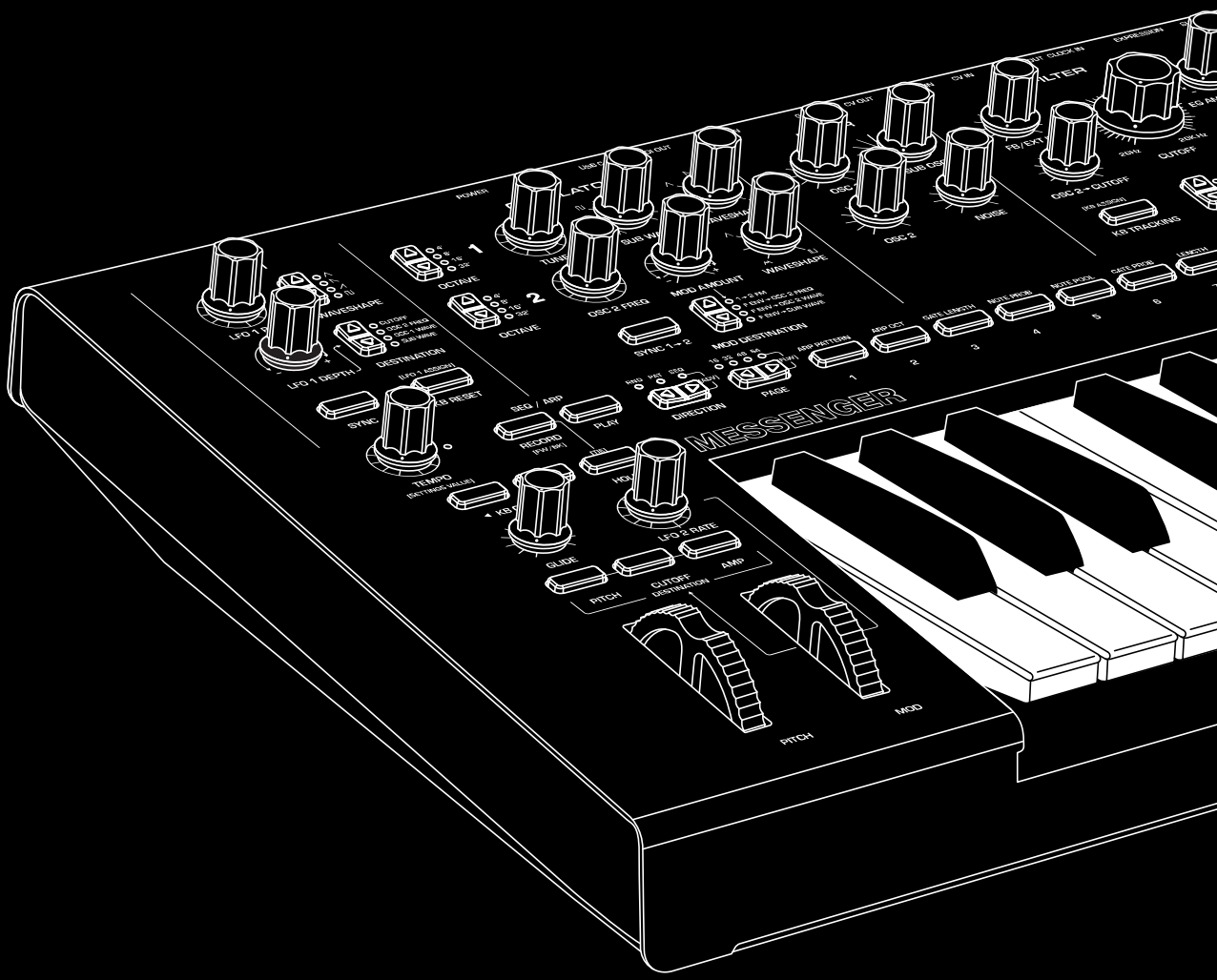
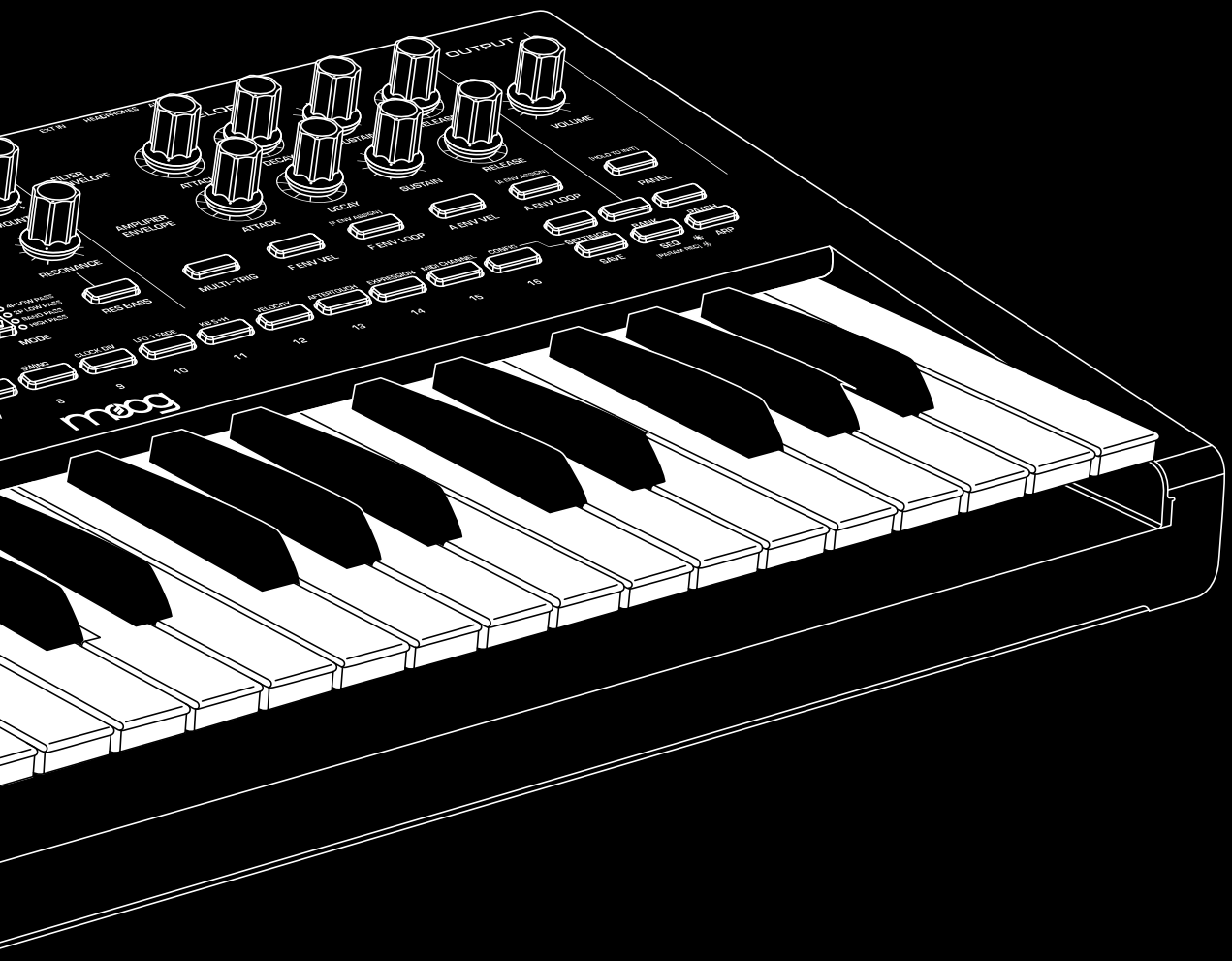


MESSENGER

USER'S MANUAL


MESSENGER
POWER
OCTAVE
OSC 2 FREQ
SYNC 1 → 2
MOD AMOUNT
WAVESHAPE
MOD DESTINATION
OSC 2
NOISE
OSC 2 → CUTOFF
KB TRACKING
SYNC
TEMPO
PLAY
RECORD
PITCH
MOD
GLIDE
AMP
CUTOFF
DESTINATION
DIRECTION
PAGE
LFO 1 DEPTH
LFO 2 RATE



“

Musical instruments have always, from the very beginning of human history, used the most advanced technology of their time. Musicians need advanced technology that’s appropriate.

”

DR. ROBERT MOOG

CONTENTS

UNPACKING AND INSPECTION

Check the contents of the shipping carton. Be careful when unpacking your new Moog Messenger so that nothing is lost or damaged. We recommend saving the carton and all packing materials in case you ever need to ship the instrument for any reason.

Messenger ships with the following items:

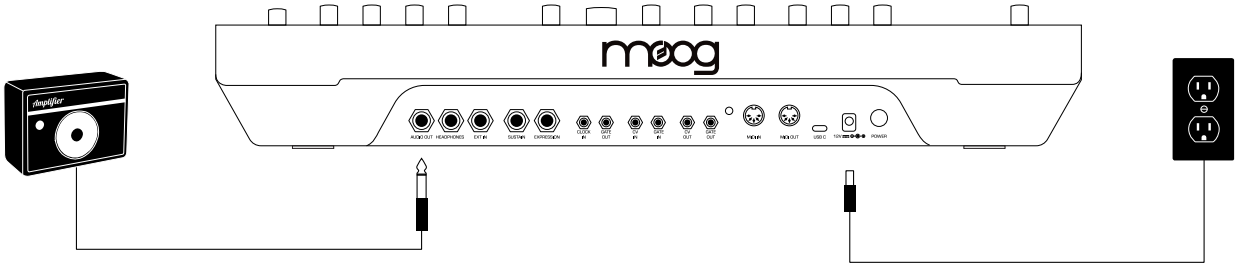
1. Moog Messenger Monophonic Analog Synthesizer
2. Power Supply
3. Quick Start Guide
4. Safety Instructions
5. Poster
6. Preset Bank Categories

SETUP AND CONNECTIONS

Find somewhere stable and secure to place your new Moog Messenger. It weighs 4.95 kilograms (about 10.9 lbs) so place it on a table or stand with enough support.
Before exploring the Moog Messenger we need to provide it with power and hook it up to an audio monitoring system.

POWER

You will first need to connect your Moog Messenger to a properly wired AC voltage source. Plug the included 12V DC center-positive power supply into the 12V DC power inlet on the rear of Messenger. Messenger uses a switching power supply that can accommodate AC power sources ranging from 100 to 240 volts and either 50 or 60 cycles (Hz).



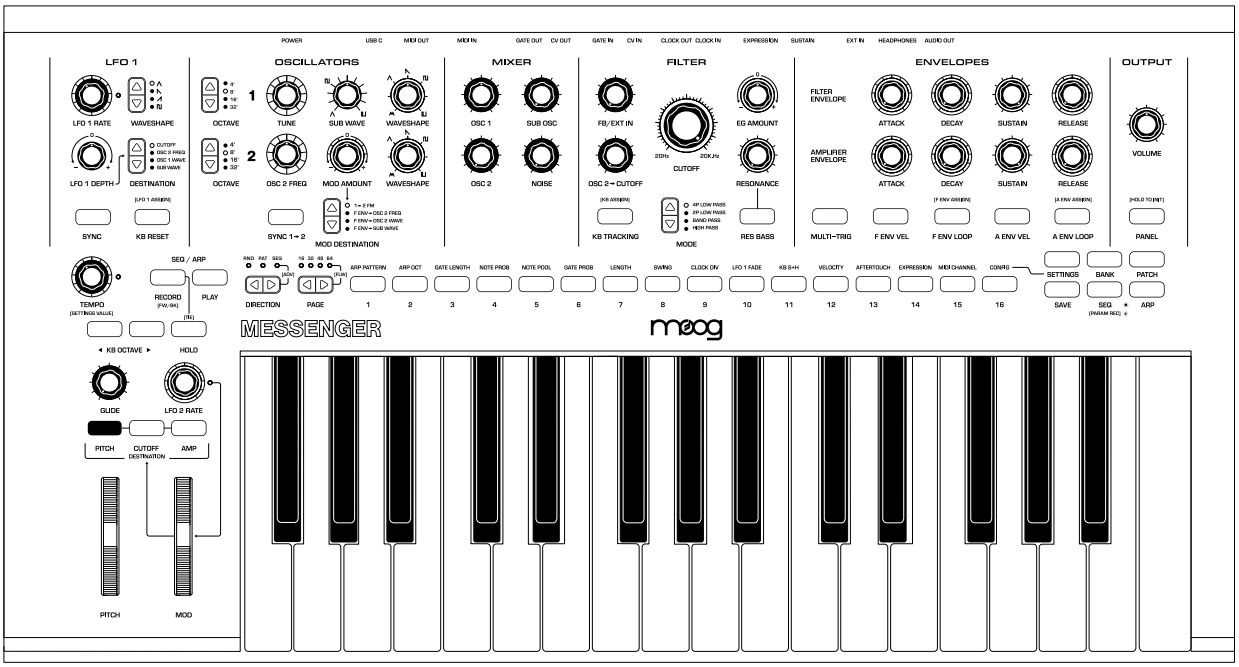
NOTE: *Messenger is an analog instrument and should be allowed 10-15 minutes to warm up before use. In cases where it has been left in a cold car overnight, for example, it may take as long as 25 minutes before oscillator tuning has stabilized. Do not operate Messenger in direct sunlight.*

AUDIO

With the **VOLUME** control turned all the way down, plug one end of a **1/4" (TS)** instrument cable into Messenger's **AUDIO OUT** jack on the rear panel. Plug the other end into an amplified speaker, mixing console, or audio interface.

Headphones can be used via the **HEADPHONES** output on the rear.

MESSENGER OVERVIEW



Messenger is the next generation of monophonic analog synthesizer design from Moog. An inventive dual oscillator section creates novel textures through wavefolding, flexible modulation, and sync while an additional variable-shape sub-oscillator adds extra weight for deep bass tones. In a first for Moog, Messenger features a twist on the legendary ladder filter which, in addition to highpass and bandpass responses, will toggle between preserving low end when resonance is increased or the traditional ladder filter response using the RES BASS switch. Dual looping ADSR envelopes, mixer feedback, and audio rate filter FM bring the classic Moog sound into the future in a more approachable package than ever before.

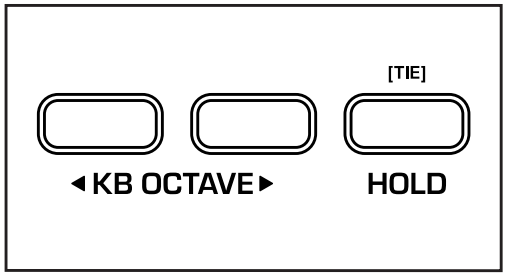
Messenger is a high-performance compact synthesizer whose 32 keys with velocity and aftertouch travel easily. 256 on-board presets allow for immediate saving and recall of your favorite sounds while two flexible LFOs provide a wealth of modulation options. An intuitive arpeggiator and expression/sustain pedal inputs make Messenger an indispensable live tool while its unique sequencer with probabilistic controls and Eurorack connectivity fold Messenger effortlessly into a studio of any size.

PLAYING MESSENGER

KEYBOARD AND LEFT-HAND CONTROLLER

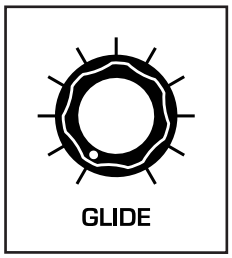
Messenger has a keyboard of 32 keys covering 2 ½ octaves which can be transposed up to 2 octaves above or below its default keyboard range using the **KB OCTAVE** switches. With oscillators set to 8’ and the keyboard in its default range (**KB OCTAVE** switches unlit) the lowest C (Do) corresponds to Middle C (C4 – approximately 261.63 Hz).

Located to the left of the Keyboard is the Left-Hand Controller, providing further expressive and performance controls. The Left-Hand Controller also contains **LFO 2** – a triangle wave modulation source which can be routed to multiple destinations and scaled via the **MOD** wheel.



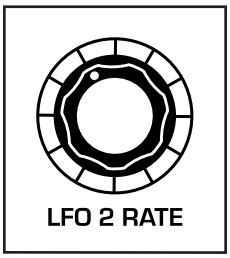
KB OCTAVE
Transposes the octave of the keyboard down (**<**) or up (**>**) by up to two octaves in either direction. In the default octave range neither button will be illuminated.

HOLD
Holds the current note when engaged, sustaining both envelopes at their **SUSTAIN** stages until **HOLD** is released. **HOLD** also acts as a latch for the Arpeggiator.

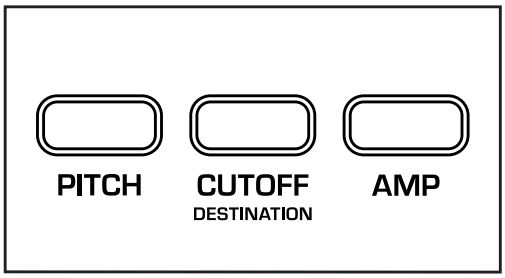


GLIDE - Increasing the **GLIDE** control will increase the amount of time it takes to move from one note to the next, creating a portamento effect.

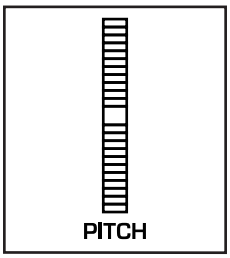
NOTE: *Different glide modes (exponential, linear constant rate, linear constant time) can be set in the* ***CONFIG*** *menu – see* ***SETTINGS*** *section below.*



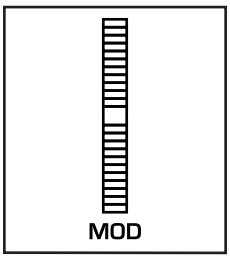
LFO 2 RATE
Sets the rate of **LFO 2**'s triangle waveform from around .05 Hz to around 12Hz.



DESTINATION
LFO 2 is a triangle wave modulation source tied to the **MOD** wheel and can modulate three different destinations - the **PITCH** of all three oscillators, the **CUTOFF** of the filter, or the **AMP**litude (i.e. volume) of Messenger.



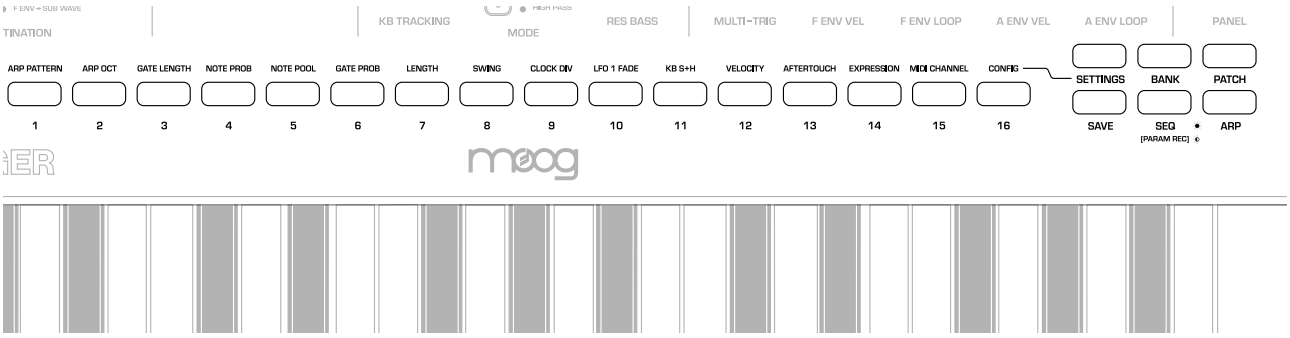
PITCH WHEEL - Bends notes by detuning all oscillators up or down by a predetermined amount. Default pitch bend range is +/- 7 semitones (can be changed in **CONFIG** menu).

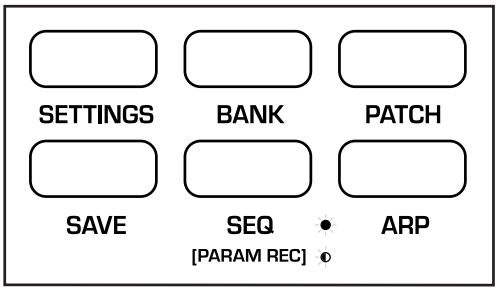


MOD WHEEL - Performance control to scale the depth of modulation from **LFO 2** applied to the destination selected with the **DESTINATION** switches.

LOADING AND EXPLORING SOUNDS

Messenger contains 16 banks of 16 presets and comes with 240 pre-programmed factory presets in banks 1-15. Bank 16 is reserved for your own user presets. The **PROGRAMMER** is found above the keyboard and primarily consists of program buttons 1-16 as well as the six buttons on the right (**SETTINGS/BANK/PATCH/SAVE/SEQ/ARP**) to modify operation of the **PGM** 1-16 buttons.





Select a bank of presets by first pressing **BANK** and then using **PGM** 1-16 buttons to select one of the 16 banks. Once you have selected a bank the **PATCH** button will illuminate and you may select one of the 16 patches in the current bank with the **PGM** 1-16 buttons.

The factory presets are organized into the following banks:

1. **Messenger** - A selection of top presets from every category
2. **Classic Bass** - Traditional synth bass and vintage low end
3. **Modern Bass** - Edgy and aggressive basses
4. **Sub Bass** - Clean deep tones for low end layering
5. **Hard Lead** - Cutting and expressive solo sounds
6. **Soft Lead** - Smooth melodic melodies
7. **Arps** - Arpeggiated plucks and patterns
8. **Orchestral** - Brass, reeds, and strings
9. **Keys** - Piano, keys, and organs
10. **Pads** - Textured shapes and harmonic clusters
11. **Mallets and Metal** - Bells, mallets, and inharmonic metallics
12. **Sweeps** - Movement, motion, and momentum
13. **Drones** - Dense drones and evolving tones
14. **Percussion** - Kicks, snares and toms to build your beat
15. **FX** - Dynamic sonic events that inspire
16. **User** - 16 blank patches to create your own sound

CREATING AND SAVING SOUNDS

To create your own entirely new sounds, you can begin with one of a handful of different starting points. Pressing the **PANEL** button on the right of Messenger will override any patch settings and revert Messenger to the settings currently expressed by the knobs and switches on the front panel. This is a great starting point for creating new sounds since all panel controls will visually align with their current setting.

Alternatively, you may hold the **PANEL** button for one second to load an initialized patch – a basic sound that serves as a great starting point for sound design. An initialized patch may also be loaded by navigating to bank 16 and choosing any of the empty patch slots – all of which are set to the initialized patch.

Finally, you can always use any of Messenger's factory presets as a starting point for creating your own sounds! With any patch you load, synthesis settings will be those saved in the patch and will not (necessarily) match the physical settings of the front panel. Moving a panel control (the filter **CUTOFF** knob, for example) will immediately override the setting for that parameter in the patch and remain overridden by the panel control until a patch is reloaded.

Pressing **SAVE** allows you to save your current patch to one of the 256 patch locations. The currently selected patch location will begin flashing - pressing any other patch location with buttons 1-16 will select a different patch location. Pressing the flashing **SAVE** button will execute the save command, storing your patch at the currently selected location.

NOTE: *During a* ***SAVE*** *operation you may switch* ***BANK*** *and* ***PATCH*** *locations as you normally would. The patch will be saved to the currently selected location upon execution of the* ***SAVE*** *operation.*

TIP: *Holding a patch location while playing the keyboard will temporarily load the patch stored at that location into memory so you can preview the patch you are overwriting.*

SYNTHESIZING WITH MESSENGER

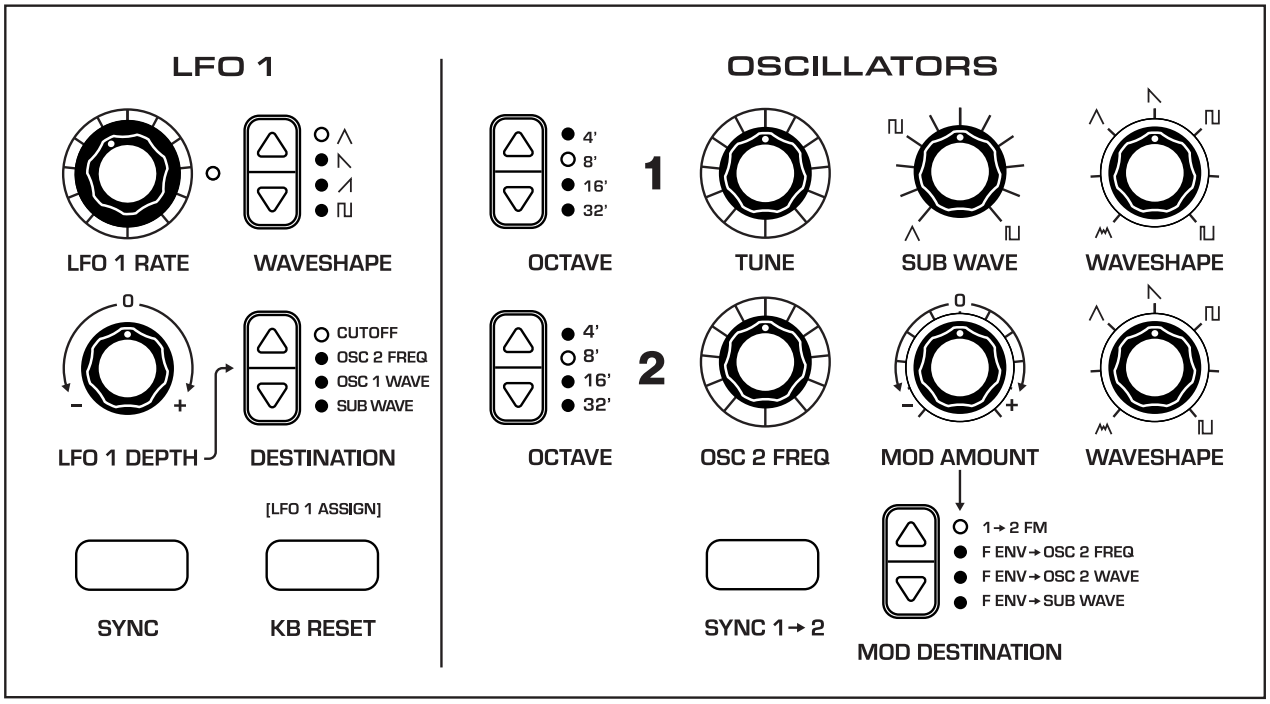
GETTING STARTED

Messenger is a synthesizer that brings the classic Moog sound into the future with innovative circuits and powerful sound design possibilities in a portable and playable package. It is a monophonic synthesizer in the vein of the Minimoog Model D which means that it plays only a single note at a time – perfect for deep rumbling basslines, searing leads, or delicate ambient textures.

Messenger is designed first and foremost to be played, so press **PATCH**, select a patch with the **PGM** 1-16 buttons, and play around! Explore how a patch sounds as you play shorter staccato notes or hold longer ones. Sometimes a patch will make use of velocity (how hard you press a key) or aftertouch (applying extra pressure to a key after it has been pressed down). Move the **MOD** wheel to see what modulation has been programmed or start moving some panel controls like the filter **CUTOFF** or the oscillator **WAVESHAPE** knobs to explore some of the timbral range within a patch.

In this section we will build a basic sound from the ground up, so let's start with an initialized patch. Press **BANK** and then press **PGM** button 16 to switch to bank 16 which is full of blank patches. The **PATCH** button will now be lit, so press **PGM** button 1 to load up the first blank patch in this bank.

BUILDING A SOUND



The initialized patch is a great starting point for sound design because we have a relatively simple and stable sound that is responsive to keyboard playing and ready to be shaped and tweaked.

The fundamental building block of sound on a synthesizer like Messenger is an oscillator. An oscillator creates a repeating shape that our ears hear and our brains interpret as a stable pitch. Press a key and you will hear **OSCILLATOR 1** – a very basic sawtooth waveform. We can play with the **TUNE** knob to offset its tuning (it is calibrated such that noon on **TUNE** corresponds to the pitch played on the keyboard) and we can use the **OCTAVE** toggle switch to change the octave of the oscillator.

From here we can start to make some decisions. Do we have a sound in our head that we'd like to work towards? Maybe we want a soft flute-like tone for layering in an ambient piece. Or maybe we want a brash trumpet sound to wake up the listener. Maybe we have no preconceptions at all and would rather play around letting our ears be our guide! All of these are fantastic approaches and there is no wrong way to play with your synthesizer. For this guide let's make a very deep and round bass sound – something you might find on a late 80's house record from Chicago. Let's set the **OCTAVE** of **OSCILLATOR 1** to 32' (and make sure **TUNE** is at noon) to get a nice low note.

Next, we can play with **WAVESHAPE** to explore all of the different shapes the **OSCILLATORS** of Messenger are capable of creating. The initial patch starts with **WAVESHAPE** at noon pointing towards the sawtooth shape – a very bright sound typically used as a starting point for string tones. As you turn **WAVESHAPE** counterclockwise you will hit the triangle shape which is the softest and least harmonically rich of all shapes and a good starting point for either softer tones or for building FM sounds. Continue turning **WAVESHAPE** counterclockwise and you will hear the wavefolder engage, progressively folding the triangle shape over itself creating bright tones of a flavor typically not found on Moog instruments. Turning **WAVESHAPE** to the other side of noon we find a different palette of sounds - the square wave with **WAVESHAPE** pointing to the square around 1:30 and then progressively thinning the square wave out as the knob is increased clockwise. The nice and symmetrical square wave is a classic building block for bass tones, so let's leave **WAVESHAPE** pointed to the square symbol (around 1:30).

The **SUB OSC** is a version of **OSCILLATOR 1** but always pitched one octave below. Great for adding extra weight and low end to a sound, you can control the levels of **OSC 1** and the **SUB OSC** in the **MIXER**.

Unique for most sub-oscillators is the **SUB WAVE** control which allows you to vary the shape of the **SUB OSC** from a clean triangle (adding pure bass weight with little extra harmonics) through variable pulse width. Let's set the **SUB WAVE** to the same square shape as **OSCILLATOR 1** (which on the **SUB WAVE** control appears around 10:30).

Messenger contains two independent oscillators since layering two tones and having them play with each other can create far richer sounds than with just a single oscillator. Raise **OSC 2**'s level in the **MIXER** and play with the **OCTAVE** and **WAVESHAPE** controls to hear the effect of layering tones on top of each other. **OSC 2 FREQ** allows you to detune **OSC 2** from **OSC 1**. You can create intervals such as fourths and fifths, or just slightly detune **OSC 2** from **OSC 1** by moving **OSC 2 FREQ** just a little bit off from noon to create a thick detuned sound full of beat frequencies and interference.

For this particular sound let's leave both **OSC 1 WAVESHAPE** and **SUB WAVE** set to square and raise the level of **OSC 1** in the **MIXER** to 3 o'clock and the level of the **SUB OSC** to noon. Adding in **OSC 2** can create a more complex sound, but let's leave **OSC 2 LEVEL** all the way down to use a more focused signal for this Chicago house bass sound.

SHAPING A SOUND

We use the **OSCILLATORS** to build a sound and the **MIXER** to layer those sounds together. The output of the **MIXER** then goes to the **FILTER** which allows us to sculpt our tone by removing frequencies. A lowpass filter like the traditional Moog ladder filter removes high frequencies and is perfect for carving our buzzy square waves into a thick bass tone.

As you move the **CUTOFF** knob counterclockwise listen as high frequencies get progressively removed. Play with the **MODE** switch and move **CUTOFF** to hear how each filter mode affects the sound differently– lowpass filters darken the sound, the highpass filter thins the sound out, and the bandpass filter allows only a narrow range of frequencies through.

Playing with **CUTOFF** is a nice way to shape a static sound, but our sound design possibilities expand endlessly if we can dynamically open and close the filter over time in response to our key presses. When plucking the string of a bass, for example, the high frequency overtones excited by the string pluck die away very quickly while the lower fundamental rings out for much longer. We can approximate this by using the **FILTER ENVELOPE** to open the filter and then quickly close it, getting a short pop and buzz from the excitement of a note that quickly decays to a low tone.

Let's set **MODE** to **4P LOW PASS** and **CUTOFF** all the way down to 9 o'clock. This is so low that we've almost filtered out the entire sound and you likely can't hear anything! But if we then move the **EG AMOUNT** knob clockwise to about 3 o'clock something magical happens – the filter opens when we press a key and then closes.

We've given a dynamic shape and articulation to our sound – the timbral characteristics of the sound now change over time. Play with the settings of the **FILTER ENVELOPE** to explore how different settings affect the shape of a note in time. **ATTACK** adds a gradual fade in to the sound while **DECAY** controls how long it takes for those initial high frequencies to get filtered out. In essence our **FILTER ENVELOPE** is turning the **CUTOFF** knob for us and **SUSTAIN** sets where that automated motion of the **CUTOFF** knob will hold while we keep a key pressed down. **RELEASE** sets the time it takes for the filter to finally fully close down to the setting set by **CUTOFF** once a key is depressed.

The **AMPLITUDE ENVELOPE** works the same way but instead controls the **AMPLIFIER**, controlling the loudness of a sound over time. Experiment with the controls of both **ENVELOPES** to get a handle of their effect on the sound. For a nice tight bass the following settings work well:

FILTER ENVELOPE: **ATTACK** fully ccw, **DECAY** noon, **SUSTAIN** 9 o'clock, **RELEASE** noon

AMPLITUDE ENVELOPE: **ATTACK** fully ccw, **DECAY** 9 o'clock, **SUSTAIN** fully cw, **RELEASE** noon

And with that we have a very simple yet versatile synthesized bass tone which works for numerous styles of music!

Let's add one little twist to it – something special that is only found on Messenger. The **RESONANCE** control feeds back the filter on itself, adding a growl by amplifying the frequencies around the filter's **CUTOFF** frequency. When the **CUTOFF** is moving under the influence of an envelope, increased **RESONANCE** heavily accentuates the filter motion and gives a characteristic liquid sound.

Turn up **RESONANCE** to hear that resonant snarl. You'll notice something, however – the low end disappears as you turn up **RESONANCE**. This has been a characteristic of the legendary Moog ladder filter for over sixty years. The filter on Messenger is the same, but we've developed a new way to preserve the low-end if you so desire by engaging the **RES BASS** switch. Turn up **RESONANCE** to noon to introduce resonant motion and then engage **RES BASS** to bring the bass back in!

SAVING A SOUND

Let's save this sound so that we can recall it at any time. We're already in the user bank (16) so all we need to do is press **SAVE** to begin the save procedure. Button 1 will begin flashing indicating we will save to patch location 1 in bank 16 – press **SAVE** one more time to confirm.

That's it! Press **PLAY** in the **SEQ/ARP**, move **DIRECTION** to **PAT**, and hold a few notes to enjoy this sound arpeggiated in a cascade of resonant bass tones. Press **CUTOFF** above the **MOD** wheel to route modulation to the **FILTER**, turn up the **MOD** wheel, and adjust **LFO 2 RATE** to add liquid **LFO** modulation while the **ARP** plays. Turn up **OSC 2** in the **MIXER** to play with layering the second oscillator on top. Feel free to experiment with this sound – you can always recall it later and you can always save your changes as a new patch.

ASSIGNING MODULATION

Messenger is designed for immediacy, with knob-per-function hands on control over all of its parameters. Modulation is easily dialed in with the separate **LFO 1**, **LFO 2**, and **OSC 2** modulation busses via the panel controls, but deeper modulation may be programmed via the Quick Assign routine for additional tonal shaping.

To perform a modulation assignment, press and hold the ASSIGN button corresponding to the modulation source you want to use. Buttons on Messenger with a secondary function have brackets around text above the button. For example, **KB RESET** in the **LFO 1** section functions as [**LFO 1 ASSIGN**] when held. Available modulation sources and their corresponding ASSIGN buttons are listed below:

LFO 1 - KB RESET
KEYBOARD - KB TRACKING
FILTER ENVELOPE - F ENV LOOP
AMPLITUDE ENVELOPE – A ENV LOOP

NOTE*: For the following sources, press* ***SETTINGS*** *first and then the corresponding PGM button to enter quick assignment for that modulation source.*

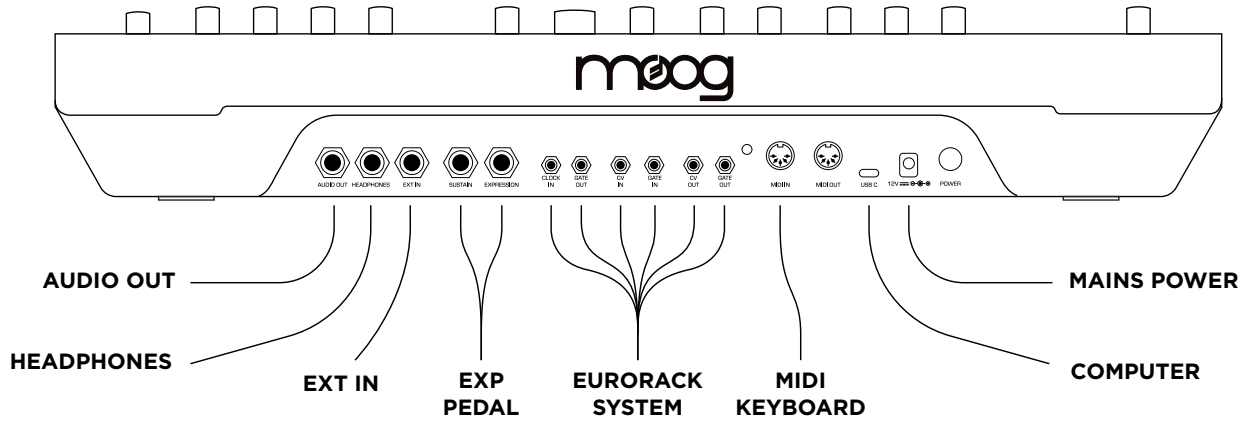
KB S+H - **PGM** Button 11
VELOCITY - **PGM** Button 12
AFTERTOUCH - **PGM** Button 13
EXPRESSION - **PGM** Button 14

Once a modulation source is selected its corresponding **ASSIGN** button will slowly flash. A modulation source may be routed to a single destination per-patch (hardwired modulation routings on the panel are always available). Turn any panel control to select that parameter as the modulation destination, and as the control is turned the **PGM** 1-16 buttons will illuminate to indicate the depth of modulation (from 0% to 100% for unipolar controls or -100% to +100% for bipolar controls with buttons 8 and 9 representing

0% modulation). **PGM** buttons 1-16 may be pressed to directly select discrete modulation depths or the **TEMPO** knob can be used for further modulation depth setting. If any other panel control is moved while the modulation **ASSIGN** button is still flashing that new panel control will be selected as the modulation destination and the previous routing will be overwritten.

Press the flashing **ASSIGN** button or simply wait a few seconds to confirm the modulation routing.

MESSENGER CONTROLS



REAR PANEL AND CONNECTIONS

AUDIO OUT – 6.5mm/¼" TS output containing the line level main output of Messenger with its volume set by the **VOLUME** control.

HEADPHONES – 6.5mm/¼" TRS output for headphones.

EXT IN – 6.5mm/¼" TS external audio input, which is mixed with the **MIXER** output at a level set by the **FB/EXT IN** control and sent to the **FILTER**.

SUSTAIN – 6.5mm/¼" TS Sustain pedal input which will hold envelopes at their **SUSTAIN** stage and begin their **RELEASE** stage once pedal is depressed.

EXPRESSION – 6.5mm/¼" TRS Expression pedal input providing +5 volts on the ring connector. A compatible expression pedal (such as the Moog EP-3) will attenuate this voltage and is configurable in the **PROGRAMMER** (see **PROGRAMMER** section).

CLOCK IN – 3.5mm analog clock input, allowing Messenger to be synced to any external clock source. Clock divisions may be configured in the CLOCK DIV settings area - defaults to analog clock of 4 pulses per quarter note (PPQN).

CLOCK OUT – 3.5mm analog clock output, sending one clock pulse per **SEQ/ARP** step.

CV IN – 3.5mm analog 1 volt per octave control voltage input, modulating the pitch of all **OSCILLATORS** as well as **KB TRACKING**.

GATE IN – 3.5mm analog gate input which will trigger both **FILTER** and **AMPLITUDE ENVELOPES**.

CV OUT – 3.5mm analog 1 volt per octave control voltage output containing note information from Messenger's keyboard and **PITCH** bend wheel. When running, outputs note information from **SEQ/ARP**. Incoming MIDI note information is output as 1 volt/octave CV signal.

GATE OUT – 3.5mm analog gate output containing gate information from Messenger's keyboard and **SEQ/ARP** when active. Incoming MIDI Note On/Off messages are output as analog gates.

MIDI IN - 5 pin DIN connector for receiving MIDI messages from external source.

MIDI OUT - 5 pin DIN connector which will output configurable messages from Messenger (see **CONFIG**).

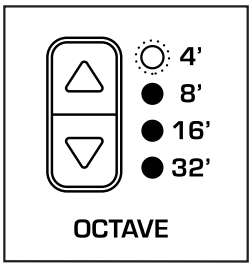
USB-C – Provides MIDI In/Out over USB. Allows for connecting Messenger to computer for firmware updates.

POWER – Power is supplied to Messenger via included 12V DC power supply.

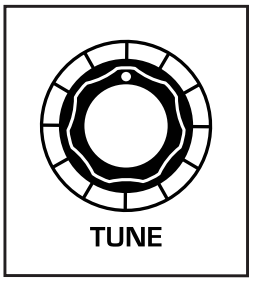
OSCILLATORS

Messenger features a powerful dual oscillator section for creating a wide range of tones – from cutting bass sounds to FM bells and growling leads. Both of Messenger's **OSCILLATORS** can be independently set to traditional waveshapes like triangle, sawtooth, and pulse, or wavefolded using the unique diode-transistor hybrid wavefolder design from the Moog Labyrinth. **OSCILLATOR 2** may additionally be detuned, synced, or frequency modulated.

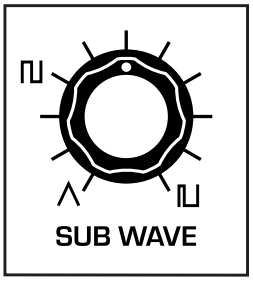
The **SUB OSC** is tied to **OSCILLATOR 1** but at one octave below and may be set to a triangle, square, or variable pulse wave for adding additional low-end power.



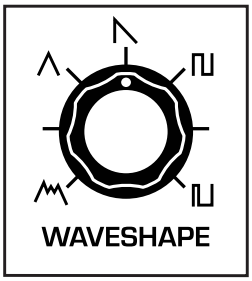
OCTAVE - Selects the octave for each **OSCILLATOR**. The **OCTAVE** options are 16', 8', 4' and 2' - a standard based around classic pipe organ stop footage settings.



TUNE - Global offset for all **OSCILLATORS**. Bipolar control - when **TUNE** is set to noon all oscillators will be in tune with the keyboard note (if a C is pressed, a C will sound based on the **OCTAVE** setting). Turning the knob clockwise will increase the pitch of all oscillators up to a perfect fifth (+7 semitones) and turning the knob counter-clockwise will decrease the pitch of all oscillators down a perfect fifth (-7 semitones).



SUB WAVE - Sets the waveshape of the **SUB OSC**. Fully counter-clockwise the sub oscillator is a triangle wave and blends to a square wave around 11 o'clock. Increasing **SUB WAVE** above 11 o'clock narrows the pulse width of the sub oscillator to around 2% at fully clockwise.

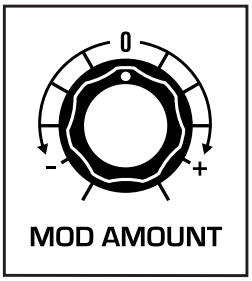


WAVESHAPE - Sets the waveshape of **OSCILLATOR 1/2**. A clean triangle wave is achievable around 11 o'clock (triangle symbol on the panel control).

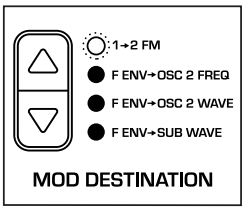
Turning **WAVESHAPE** counter-clockwise from triangle increasingly folds the triangle wave using a unique diode-transistor hybrid wavefolder.

Turning **WAVESHAPE** clockwise from triangle blends to a sawtooth wave (noon), square wave (around 1 o'clock), and narrows the pulse width to around 2% at fully clockwise.

OSC 2 FREQ - Detunes **OSCILLATOR 2** frequency from **OSCILLATOR 1** (relative to any offsets from **TUNE** control). Bipolar control from -7 semitones to +7 semitones.



MOD AMOUNT - Sets the modulation amount depending on the setting of the **MOD DESTINATION** switch. Bipolar control - zero modulation depth at noon, 100% positive modulation fully clockwise, and 100% negative modulation fully counter-clockwise.



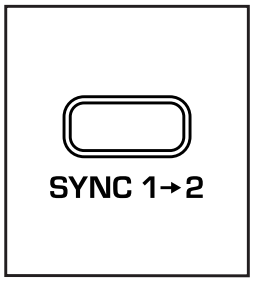
MOD DESTINATION - Sets the modulation source and destination for the MOD AMOUNT control:

1->2 FM: OSCILLATOR 1 modulates the frequency of **OSCILLATOR 2**.

F ENV->OSC 2 FREQ: FILTER ENVELOPE modulates the frequency of **OSCILLATOR 2**.

F ENV->OSC 2 WAVE: FILTER ENVELOPE modulates the waveshape of **OSCILLATOR 2**.

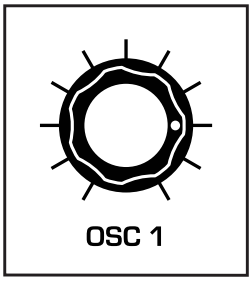
F ENV->SUB WAVE: FILTER ENVELOPE modulates the waveshape of the **SUB OSC**.



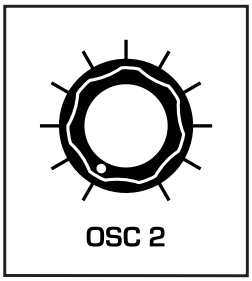
SYNC 1->2 - Engages oscillator sync of **OSCILLATOR 2** to the phase of **OSCILLATOR 1**. The effect of **SYNC** becomes more and more pronounced as **OSCILLATOR 2**'s pitch is increased above **OSCILLATOR 1**, yielding increasingly harmonically rich timbres as **OSCILLATOR 2** is forced to align itself with **OSCILLATOR 1**'s phase.

MIXER

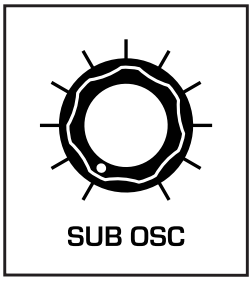
The MIXER brings together Messenger's two primary oscillators, sub oscillator, and a noise generator. Unlike some other Moog mixer designs, this mixer does not saturate – each channel is at clean unity gain when set fully clockwise.



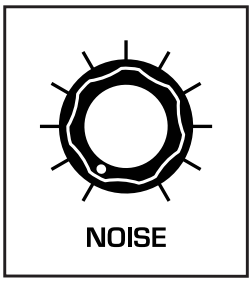
OSC 1 - Sets the level of OSCILLATOR 1.



OSC 2 - Sets the level of OSCILLATOR 2.



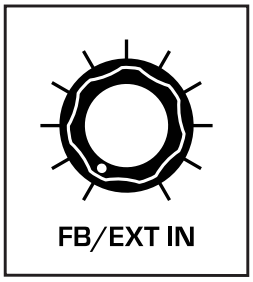
SUB OSC - Sets the level of the SUB OSCILLATOR.



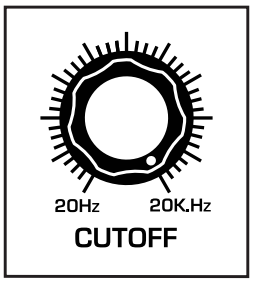
NOISE - Sets the level of the white NOISE generator.

FILTER

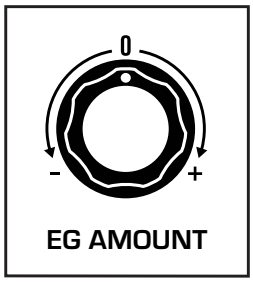
The **FILTER** allows for tonal shaping of the sound coming from the **MIXER**. Messenger uses a unique filter design never before seen on a Moog instrument - a twist on the legendary transistor ladder filter capable of highpass/bandpass modes in addition to the traditional lowpass mode via creative mixing of the filter pole outputs. This innovation also allows us to preserve low-end when **RESONANCE** is increased (in the traditional ladder filter low-end is lost with increased **RESONANCE**).



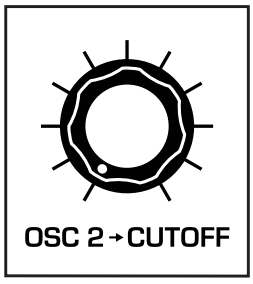
FB/EXT IN - Mixes the signal at **EXT IN** jack with the **MIXER** output at the **FILTER** input. If no connection is present at **EXT IN**, this control feeds the **MIXER** output back to the **MIXER** input.



CUTOFF - Sets the cutoff frequency of the **FILTER**, determining which harmonics are removed from the signal path. A lowpass filter will remove all frequencies above the **CUTOFF** while a highpass filter will remove all frequencies below the **CUTOFF**. A bandpass filter will let only frequencies around the **CUTOFF** pass through.



EG AMOUNT - Routes the **FILTER ENVELOPE** to modulate the **CUTOFF** frequency of the **FILTER**. **ENVELOPE AMOUNT** is a bipolar control allowing for positive or negative modulation of the FILTER **CUTOFF**.



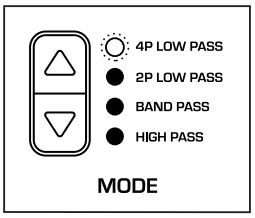
OSC 2 → **CUTOFF** - Routes **OSCILLATOR 2** to modulate the **CUTOFF** frequency of the **FILTER**, creating anything from subtle filter vibrato to unique tuned audio rate filter FM.

RESONANCE - Emphasizes the **CUTOFF** frequency of the **FILTER**, creating a resonant peak at the **CUTOFF** frequency. When turned fully clockwise the **RESONANCE** will reach a point of self-oscillation and generate a sine wave.

RES BASS - In the classic design of the Moog transistor ladder filter from the 1960s, bass content in the filter would be attenuated as the **RESONANCE** control was increased. With the **RES BASS** switch disengaged this behavior is preserved. Engaging **RES BASS** utilizes the distinct twist in the ladder filter design used by Messenger to preserve bass content in the filter as **RESONANCE** is increased.

KB TRACKING - Enables full volt/octave keyboard control of the **CUTOFF** frequency, allowing notes played higher on the keyboard to have a brighter sound.

[KB ASSIGN] *- You may assign **KB** Tracking depths other than the volt/octave standard by assigning the keyboard as modulation via **[KB ASSIGN]**. Hold **KB TRACKING** for 2 seconds to set the button flashing, allowing you to assign Messenger's keyboard to modulate any panel control. With **KB TRACKING** flashing, move a panel control and the 1-16 buttons will illuminate to indicate the depth of modulation (positive or negative). Press **KB TRACKING** to confirm this modulation routing. Only one **KB** modulation routing may be programmed this way per patch.*

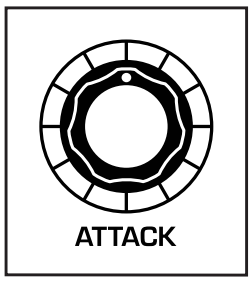


MODE - Selects the filter mode:

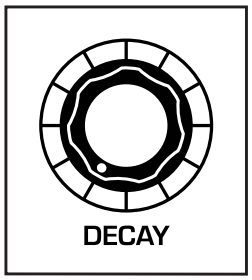
4P LOW PASS - Four-pole lowpass filter with a 24 dB/octave roll off which will attenuate all frequencies above the **CUTOFF**. The classic Moog transistor ladder filter response.
2P LOW PASS - Two-pole lowpass filter with a 12 dB/octave roll off. This unique filter slope using the transistor ladder filter design gives a slightly brighter tonality.
BAND PASS – Four-pole bandpass filter response which will attenuate frequencies both above and below the **CUTOFF**. Increasing **RESONANCE** will sharpen the bandpass peak and create a narrower frequency range.
HIGH PASS – Two-pole highpass filter response which will attenuate all frequencies below the **CUTOFF**.

ENVELOPES

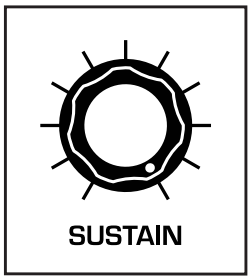
Messenger contains two envelopes for temporal control of the **FILTER** and **AMPLIFIER** respectively. Each envelope is a typical **ADSR** style and shapes the articulation of notes over time in response to a key press.



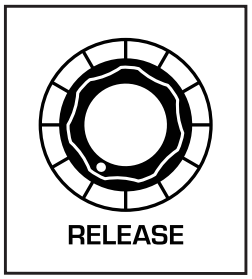
ATTACK - Sets the length of time it takes for the envelope to rise from its current value (zero if at rest) to its maximum value.



DECAY - Sets the length of time it takes for the envelope to fall from its maximum value to the level set by **SUSTAIN** while a key is held.

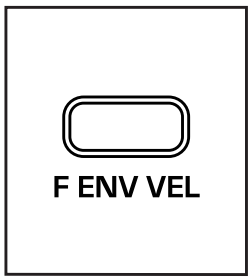


SUSTAIN - Sets the level the envelope settles to after the **DECAY** stage and the level the envelope sustains at while a key is held down.

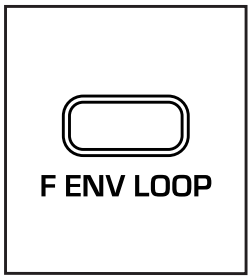


RELEASE - Sets the length of time it takes for the envelope to fall from its current value to zero after a key is released.

MULTI-TRIG – Messenger's envelopes respond by default in the same way as the Minimoog Model D when playing legato – they will not retrigger until all keys have been depressed. Engaging **MULTI-TRIG** will retrigger both **FILTER** and **AMPLITUDE ENVELOPES** with each new key press regardless of legato playing.

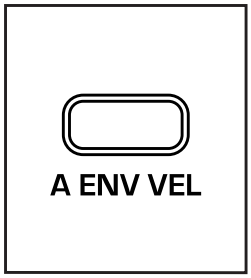


F ENV VEL – Engages dynamic amplitude control of the **FILTER ENVELOPE** via the velocity of a key press – resulting in envelopes with larger amplitude when a key is pressed harder and lower amplitudes when a key is pressed softly.

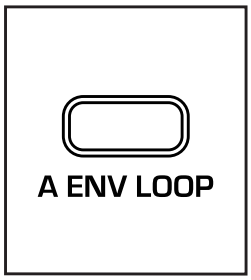


F ENV LOOP - Engages looping behavior that allows the **FILTER ENVELOPE** to function similarly to an LFO. When engaged the envelope will move through its stages and at the end of **RELEASE** stage the **ATTACK** stage will re-trigger automatically.

[F ENV ASSIGN] *- Hold* ***F ENV LOOP*** *for 2 seconds to set the button flashing, allowing you to assign the* ***FILTER ENEVELOPE*** *to modulate any panel control. With* ***F ENV LOOP*** *flashing, move a panel control and the 1-16 buttons will illuminate to indicate the depth of modulation (positive or negative). Press* ***F ENV LOOP*** *to confirm this modulation routing. Only one* ***FILTER ENVELOPE*** *modulation routing may be programmed this way per patch.*



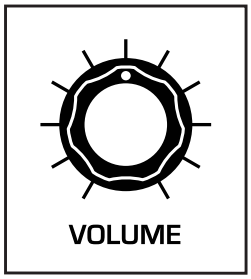
A ENV VEL – Engages dynamic amplitude control of the **AMPLITUDE ENVELOPE** via the velocity of a key press – resulting in envelopes with larger amplitude when a key is pressed harder and lower amplitudes when a key is pressed softly.



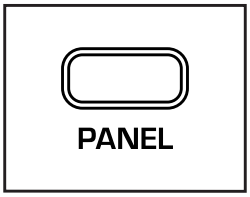
A ENV LOOP - Engages looping behavior that allows the **AMPLITUDE ENVELOPE** to function similarly to an LFO. When engaged the envelope will move through its stages and at the end of **RELEASE** stage the **ATTACK** stage will re-trigger automatically.

[A ENV ASSIGN] *- Hold* ***A ENV LOOP*** *for 2 seconds to set the button flashing, allowing you to assign the* ***AMPLITUDE ENEVELOPE*** *to modulate any panel control. With* ***A ENV LOOP*** *flashing, move a panel control and the 1-16 buttons will illuminate to indicate the depth of modulation (positive or negative). Press* ***A ENV LOOP*** *to confirm this modulation routing. Only one* ***AMPLITUDE ENVELOPE*** *modulation routing may be programmed this way per patch.*

OUTPUT



VOLUME - Sets the volume level of Messenger's output signal at the **AUDIO OUT** output jack.

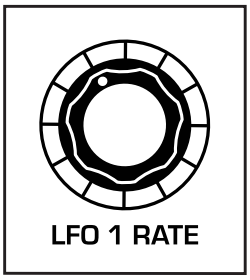


PANEL - When engaged, Messenger's synthesis engine will reflect the position of all physical panel controls, ignoring any presets loaded.

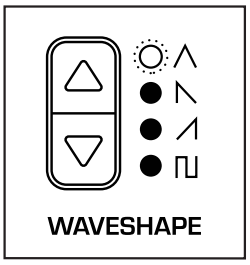
TIP: *Press and hold* ***PANEL*** *to load an initialized state for Messenger's synthesis engine, sequencer, and arpeggiator- a great place to start synthesizing your own sounds from scratch! Press* ***PANEL*** *while holding either* ***SEQ*** *or* ***ARP*** *to initialize the sequencer/ arpeggiator respectively without affecting the other (or the sound engine).*

LFO 1

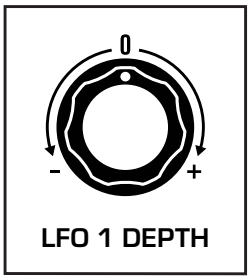
Messenger has two Low Frequency Oscillators (LFOs) for cyclical modulation of various parameters. LFOs add movement to your sound and can create anything from vibrato and tremolo effects to extreme sonic changes over time. **LFO 1** is found in the top-left of Messenger and is a flexible modulation source which can be routed to multiple destinations. **LFO 2** is a triangle-wave modulation source and lives in the Left-Hand Controller (see **KEYBOARD AND LEFT-HAND CONTROLLER** above).



LFO 1 RATE - Sets the rate of **LFO 1** from around .05 Hz to around 12Hz. When **SYNC** is engaged, **LFO 1 RATE** will instead select multiplications/divisions of the master clock.

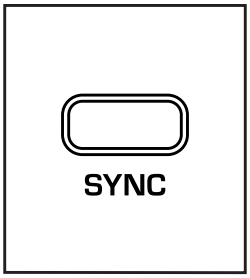


WAVESHAPE - Selects a waveshape for **LFO 1** - either triangle, sawtooth, ramp, or square wave.

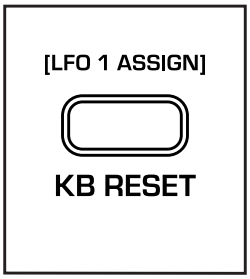


LFO 1 DEPTH - Sets the depth of modulation from **LFO 1** applied to the destination selected by the **DESTINATION** switch. Bipolar control with fully clockwise representing 100% modulation, fully counter-clockwise representing 100% inverted modulation, and noon zero modulation.

DESTINATION - Selects a modulation destination for **LFO 1** - either the filter **CUTOFF**, the **FREQ**uency of OSC 2, the **WAVE**shape of **OSC 1**, or the **WAVE**shape of the **SUB** oscillator.



SYNC - When engaged synchronizes **LFO 1** to a multiplication or division of the master clock.



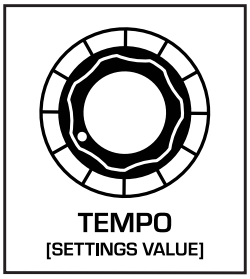
KB RESET - When engaged forces the waveform of **LFO 1** to reset every time a gate is received. This can be either from a key press, a new step firing in the Sequencer/Arpeggiator, or a gate via MIDI or external CV.

[LFO 1 ASSIGN] *- Hold* ***KB RESET*** *for 2 seconds to set the button flashing, allowing you to assign the* ***LFO 1*** *to modulate any panel control. With* ***KB RESET*** *flashing, move a panel control and the 1-16 buttons will illuminate to indicate the depth of modulation (positive or negative). Press* ***KB RESET*** *to confirm this modulation routing. Only one* ***LFO 1*** *modulation routing may be programmed this way per patch.*

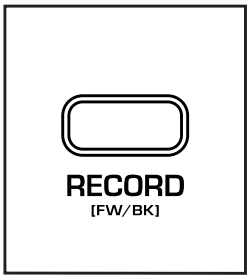
SEQ/ARP

The **SEQ/ARP** is a powerful tool allowing you to generate and record patterns for playback. The **SEQUENCER** allows you to record a sequence of up to 64 steps and play it back. Sequence data is stored on a per-patch basis. Probabilistic behavior and sequence settings can be configured in the **SETTINGS** page (see below).

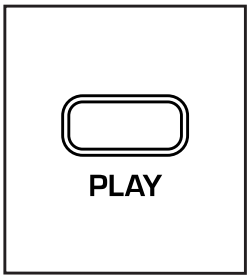
Hold down a chord and the **ARPEGGIATOR** will play the notes of that chord back in a configurable pattern at a time determined by **TEMPO**. Pressing the **ARP** button on the right of Messenger allows you to use the **PGM 1-16** buttons to program a rhythm, while arpeggiation pattern, octave range, and more are configured in **SETTINGS**.



TEMPO - Sets the tempo of Messenger's internal clock, from around 30 BPM to 300 BPM. If an analog clock is present at **CLOCK IN**, **TEMPO** selects a clock division for the incoming analog clock. If receiving a MIDI clock via DIN or USB, **TEMPO** selects a clock division/multiplication for the incoming MIDI clock.

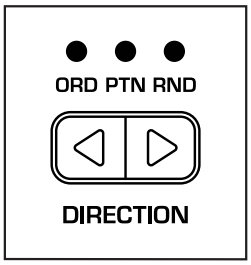


RECORD – When in **SEQ** mode (selected via **DIRECTION** switch) press to enter **RECORD** mode (see **SEQUENCER OPERATION** below). When in **ARP** mode (either **RND** or **PAT** selected via **DIRECTION** switch) **RECORD** toggles pendulum **FW/BK** motion on or off.



PLAY – Toggles the **SEQ/ARP** to playback. When **DIRECTION** is set to **RND/PAT, PLAY** engages the **ARPEGGIATOR** and plays back the held chord note by note at the rate set by **TEMPO**. When **DIRECTION** is set to **SEQ, PLAY** engages the **SEQUENCER** and plays back the current sequence at the rate set by **TEMPO**.

TIP: *Pressing a key on the keyboard will transpose the sequence up or down by the number of semitones the pressed key is above C5 – MIDI note 72. Untransposed sequence playback corresponds to pressing C5 which is the second C on the Messenger keybed with no* ***KB*** *Octave shifts.*

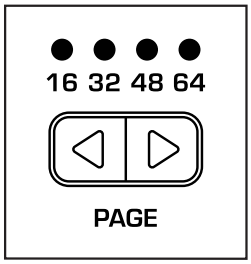


DIRECTION – Toggle switch to choose between different **ARPEGGIATOR** modes or the **SEQUENCER**.

RND – Plays back the held keyboard notes in a random order when **PLAY** is engaged.

PAT – Plays back the held keyboard notes in an arpeggiator pattern configurable in **SETTINGS** (see **ARP PATTERN**) when **PLAY** is engaged.

SEQ – Plays back the current sequence when **PLAY** is engaged. Allows for sequence recording when **RECORD** is engaged.



PAGE – Selects which section of 16 steps within a sequence the **PGM 1-16** buttons are addressing when editing sequences longer than 16 steps – steps 1-16, steps 17-32, steps 33-48, or steps 49-64.
When the **PAGE** containing the last step of the current sequence is selected, pressing **PAGE** once more to the right will enter follow (**FLW**) mode and will always display the page where the sequencer playhead is currently located. Press **PAGE** left to exit **FLW** mode.

***NOTE: PAGE** is limited by the current sequence **LENGTH** – see **SETTINGS** below to change sequence **LENGTH**.*

SEQUENCER OPERATION

Each **PATCH** on Messenger contains a single sequence of up to 64 steps. To record a sequence, first switch **DIRECTION** to **SEQ**.

- » Press **RECORD** to enter record mode. As you play notes on the keyboard those notes will be indexed note by note into the sequencer.
- » Press **HOLD** to index a **TIE** onto a step (tying the note from the previous step over) or press the right **DIRECTION** button to **ADV**ance the sequencer one step – inserting a rest.
- » Press **RECORD** again to confirm the sequence – this will set the length of the sequence to the number of notes entered.

***NOTE:** Hold **SEQ** and press **PANEL** [**INIT**] to initialize the sequencer without affecting the sound engine or arpeggiator.*

To edit your sequence press **SEQ**. This will enter the **SEQ** view, with each **PGM 1-16** button (combined with **PAGE** toggle) representing one step of the current sequence. Press a step button to turn off the **LED** and mute that step. Press and hold a step button and, while continuing to hold down the step button, press any note on the keyboard to replace the note at that step.

***NOTE:** Hold a step and press **ADV** to move the sequencer playhead to that step.*

***TIP:** With **PLAY** off, holding a step and pressing **PLAY** will the play the note at that step so you can audition the note there.*

***TIP:** Press **PANEL** while holding down a step to initialize that step – wiping note data from the step.*

You may also record a sequence live by playing notes in time with the sequencer. Press **PLAY** to set the sequencer running and then press **RECORD** to arm the sequencer. Playing a note will index it onto the step currently lit by the chase light. Anytime a note is played in live **RECORD** mode it will replace whatever exists in the currently lit step. If you are starting from an initialized **PATCH** in live **RECORD** mode the default sequence length will be 64 steps.

***NOTE:** When both **RECORD** and **PLAY** are engaged (enabling live record mode) keyboard transposition of sequences is disabled.*

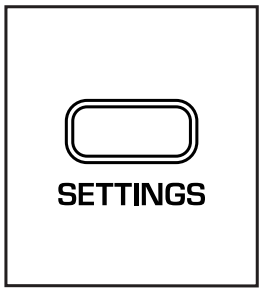
The sequence **LENGTH** can be changed in the **SETTINGS** page. Press **SETTINGS** and then **PGM** button 7 (**LENGTH**) - now using the **PAGE** toggle and **PGM 1-16** buttons select the last step of your sequence. Changing the sequence length is non-destructive, so if you shorten a sequence and then re-lengthen it later the notes you effectively cut out will be recovered. **NOTE PROB** and **NOTE POOL** are two deeper sequencer functions for adding probabilistic functions and chance operations to your sequence – see **SETTINGS** below for more information.

PARAMETER RECORD

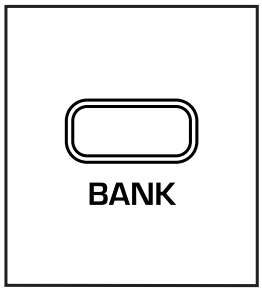
Press **SEQ** again and it will begin flashing – indicating we are now in **PARAM RECORD** mode. Parameter recording allows you to record changes to front panel controls on sequence steps – creating sequences with more dynamic movement through per-step timbral changes. While in **PARAM RECORD** mode unlit **PGM 1-16** buttons indicate steps that do not yet have a parameter value indexed on them while lit steps do. Press and hold a step button and turn a panel control - release the step button to index that parameter change onto the current step. Only one parameter value may be stored per step in the sequence.

PROGRAMMER/NAVIGATION

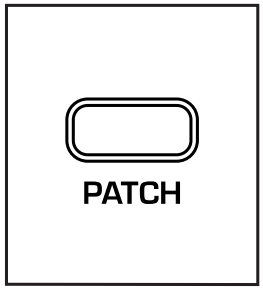
The **PROGRAMMER** consists of the **16 PGM** buttons in the center and six buttons on the right of Messenger. These controls allow you to do anything from browse banks and presets, edit sequences, and configure deeper programmatic options on Messenger.



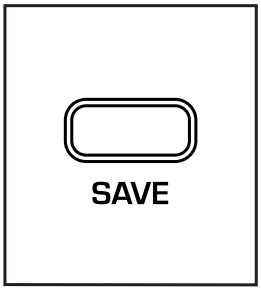
SETTINGS – Puts the **PGM 1-16** buttons into settings mode where each 1-16 button may be used to configure the settings parameter written above the button. Refer to the **SETTINGS** section below for more information.



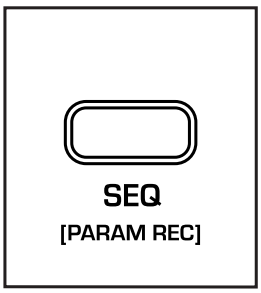
BANK – Puts the **PGM 1-16** buttons into bank mode, with each button representing a bank of 16 presets. Refer to **LOADING AND EXPLORING SOUNDS** above for a breakdown of factory presets by bank. Once a bank is chosen, the **PATCH** button will automatically be selected to choose a patch within the chosen bank.



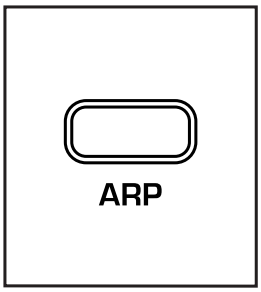
PATCH – Puts the **PGM 1-16** buttons into patch mode, allowing you to select a patch within the current bank.



SAVE – Enables saving of the current patch. Refer to **CREATING AND SAVING SOUNDS** above for a breakdown of how to save patches.



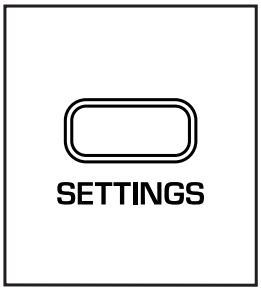
SEQ – Puts the **PGM 1-16** buttons into sequencer mode, with each 1-16 button (in combination with the **PAGE** switch) representing a step of the current sequence. Press again to set **SEQ** blinking which enters the sequencer **PARAM RECORD** mode. Refer to **SEQUENCER OPERATION** and **PARAMETER RECORDING** above for more information.



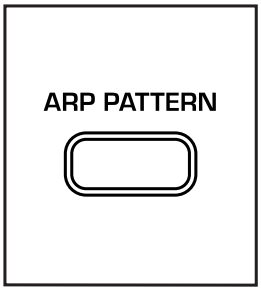
ARP – Puts the **PGM 1-16** buttons into arpeggiator mode, allowing you to use them to program a rhythm for arpeggiator playback. Any rhythms you program in the **ARP** page will be saved on a per-patch basis.

NOTE: *Hold* ***ARP*** *and press* ***PANEL [INIT]*** *to initialize the arpeggiator without affecting the sound engine or sequencer.*

SETTINGS

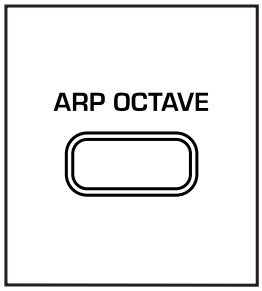


Press **SETTINGS** and the **PGM 1-16** buttons give access to expanded modulation routings, arpeggiator patterns, sequencer probabilistic functions, and global settings. Press one of the **PGM 1-16** buttons to select a setting for editing (each setting is written above its corresponding 1-16 button). Then use either the **PGM 1-16** buttons or **TEMPO** knob to select an option (options are detailed in each corresponding section below). Once edited, press **SETTINGS** to confirm the edit and return to the settings selection mode.



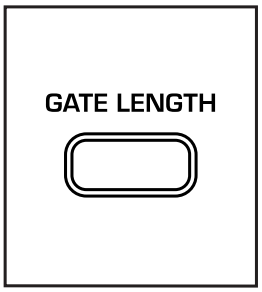
1 - **ARP PATTERN** - Selects a pattern for the Arpeggiator when **DIRECTION** switch is set to **PTN**. Saved per-patch.

1	Up	Ascending order
2	Down	Descending order
3	Order	Played in order played on the keyboard
4	Non-Serial Random	Random order but notes may sequentially repeat
5	Leapfrog Up +2 -1	Ascending order in pattern of two steps up, one step down
6	Leapfrog Down –2 +1	Descending pattern of two steps down, one step up
7	Inner -> Outer (UP)	Inner notes to outer notes trending upwards
8	Inner -> Outer (DOWN)	Inner notes to outer notes trending downwards
9	Outer -> Inner (UP)	Outer notes to inner notes trending upwards
10	Outer -> Inner (DOWN)	Outer notes to inner notes trending downwards
11	Pedal Tone (UP)	Alternates between lowest note and next ascending note. C-E-G-B chord played results in C, E, C, G, C, B, C, E, etc.
12	Pedal Tone (DOWN)	Alternates between lowest note and next descending note. C-E-G-B chord played results in C, B, C, G, C, E, C, B, etc.
13	Pedal Tone (RANDOM)	Alternates between lowest note and random note
14		
15		
16		

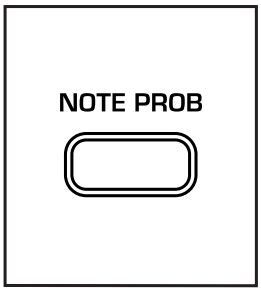


2 - ARP OCTAVE - Selects octave range and movement for Arpeggiator. Saved per-patch.

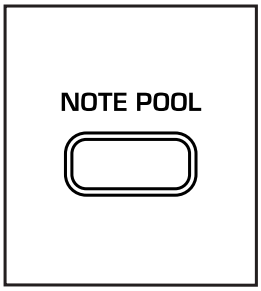
1	None	Pattern is played in its current octave
2	2 Pattern	Pattern is played in the current octave and then repeated one octave up
3	3 Pattern	Pattern is played in the current octave and then repeated one octave up, then two octaves up
4	4 Pattern	Pattern is played in the current octave and then repeated one octave up, then two octaves up, then three octaves up
5	2 Note	First note of pattern is played in current octave, then played one octave up, then second note in pattern is played in current octave, then played one octave up, etc.
6	3 Note	As above but up to 3 octaves
7	4 Note	As above but up to 4 octaves
8	2 Random	Randomly assigns note to be in current octave or one above
9	3 Random	Randomly assigns note to be in current octave or up to two above
10	4 Random	Randomly assigns note to be in current octave or up to three above
11		
12		
13		
14		
15		
16		



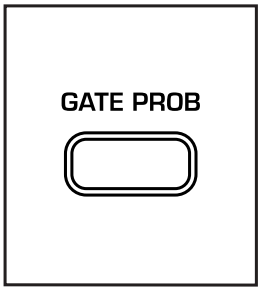
3 – GATE LENGTH - Selects a gate length for the **SEQ/ARP**. Gate lengths are selectable either continuously via **TEMPO** knob or in discrete levels via the **PGM 1-16** buttons. Button 1 represents a gate length of 6.25%, button 8 a gate length of 50%, and button 16 a gate length of 100%. Saved per-patch.



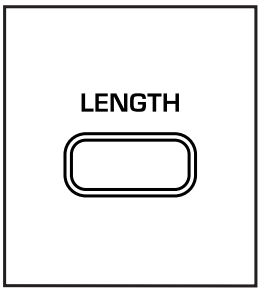
4 – NOTE PROB – Enables sequence steps for probabilistic note change and allows for setting of probability index. Sequence steps enabled for probabilistic note change will either play back the sequenced note or an alternative note – either pulling a random note from the **NOTE POOL** (see below) or a truly random note if no data is in the **NOTE POOL**. **PGM** buttons 1-16 (along with **PAGE**) show active steps in the sequencer as dimly lit – press a step to enable it for probabilistic note change (step will be fully lit). Adjust **TEMPO** to set the probability of note change from 0% to 100% - applies to all enabled steps. Saved per-patch.



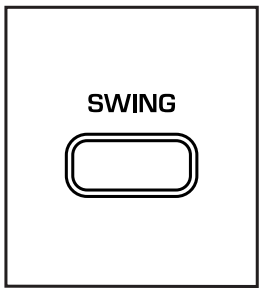
5 – NOTE POOL – Allows you to add notes to the **NOTE POOL** – a set of up to 16 notes that will be randomly chosen if a note change is triggered probabilistically via **NOTE PROB**. After selecting **NOTE POOL** simply play notes on the keyboard to add them to the pool – lighting up the **PGM 1-16** buttons as you add notes. You may add the same note multiple times to increase its chance of being pulled. Hold a lit **PGM 1-16** button and press **PLAY** to audition that particular note in the pool – continue holding and press any key to change the note. The note pool is saved per-patch.



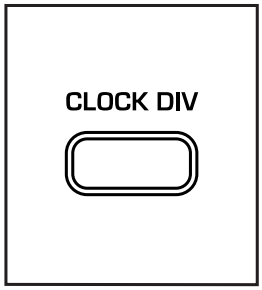
6 – GATE PROB – Enables sequence steps for probabilistic rhythmic changes via note dropping. Sequence steps enabled for gate probability will either be played or not depending on the probability index. **PGM** buttons 1-16 (along with **PAGE**) show active steps in the sequencer as dimly lit – press a step to enable it for gate probability (step will be fully lit). Adjust **TEMPO** to set the gate probability from 0% chance of note being played to 100% chance (default is 50%). Saved per-patch.



7 – LENGTH – Use the **PGM 1-16** buttons in combination with **PAGE** to select the last step of a sequence – setting the sequence length anywhere from 1 to 64 steps. Saved per-patch.



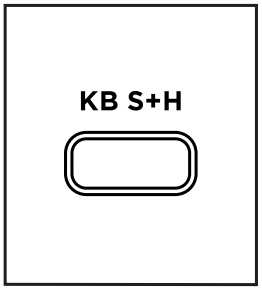
8 – SWING – Adds swing to the sequence, shifting off beats a bit later with **SWING** above 50% or a bit earlier with **SWING** below 50%. **SWING** of 50% represents no swing. Saved per-patch.



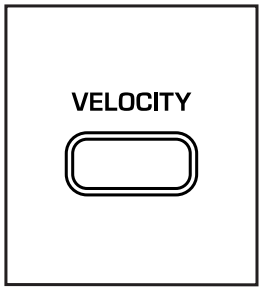
9 – CLOCK DIV – Selects a clock division for **SEQ/ARP** playback. Division is applied to master clock set by **TEMPO**, **MIDI** clock, or incoming analog clock via **CLOCK IN**. Saved per-patch.

1	1/32 Note	1/32
2	1/16 Note Triplet	1/16 T
3	Dotted 1/32 Note	1/32 D
4	1/16 Note	1/16
5	1/8 Note Triplet	1/8 T
6	Dotted 1/16 Note	1/16 D
7	1/8 Note	1/8
8	1/4 Note Triplet	1/4 T
9	Dotted 1/8 Note	1/8 D
10	1/4 Note	1/4
11	1/2 Note Triplet	1/2 T
12	1/4 Note Dotted	1/4 D
13	1/2 Note	1/2
14	Whole Note Triplet	1 T
15	1/2 Note Dotted	1/2 D
16	Whole Note	1

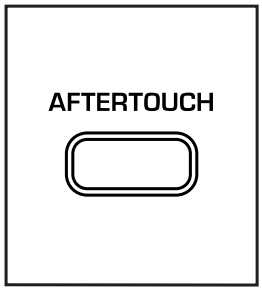
10 – LFO 1 FADE - Selects fade in/fade out behavior for **LFO 1**. Negative values (i.e. buttons 1-8 or setting **TEMPO** below noon) apply an attack envelope to **LFO 1** of up to 10 seconds at full negative setting - fading in **LFO 1** after every key press. Positive values (i.e. buttons 9-16 or setting **TEMPO** above noon) apply a decay envelope “fade out” to **LFO 1** of up to 10 seconds at full positive setting. Fade behavior is off by default and can be disabled by setting **TEMPO** to noon. Saved per-patch.



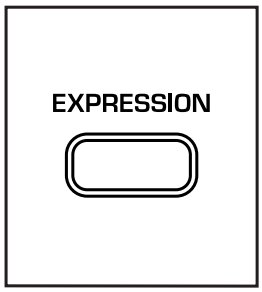
11 – KB S+H - Modulation source which generates a new bipolar random value with every key press and can be routed to modulate a panel control as described above in **ASSIGNING MODULATION**. After selecting **KB S+H**, move a panel control to select that parameter as the modulation destination. Continue moving the panel control to set the depth of modulation either positive or negative - **PGM** buttons 1-16 will light up to indicate the modulation depth. You may alternatively press one of the **PGM** buttons to select a discrete modulation depth or use the **TEMPO** knob for modulation depth setting. Moving any other panel control will select that parameter as the modulation destination and overwrite the previous routing. Saved per-patch.



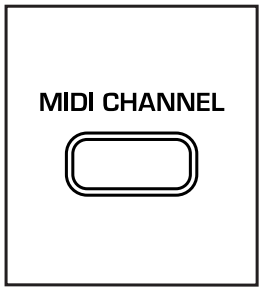
12 – VELOCITY - Keyboard velocity selectable as a modulation source which can be routed to modulate a panel control. See **KB S+H** above for modulation assignment procedure. Saved per-patch.



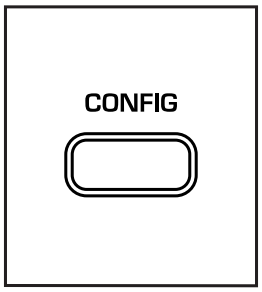
13 – AFTERTOUCH - Keyboard aftertouch selectable as a modulation source which can be routed to modulate a panel control. See **KB S+H** above for modulation assignment procedure. Saved per-patch.



14 – EXPRESSION - Expression pedal (via **EXPRESSION** input on rear of Messenger) selectable as a modulation source which can be routed to modulate a panel control. See **KB S+H** above for modulation assignment procedure. Saved per-patch.



15 – MIDI CHANNEL - Selects MIDI input and output channels. Use **PGM** buttons 1-16 to select MIDI channel 1-16 as input/output. To select independent input/output channels, first select a MIDI input channel with **PGM** buttons 1-16, and then press and hold a different **PGM** button for 2 seconds to select that channel as MIDI output. Global setting which persists through **PATCH** changes and power cycles.



16 - CONFIG - Enters **CONFIG** view, offering further configuration settings such as control ranges, glide behavior, **MIDI** configuration, and more. Press **SETTINGS** and then **PGM** button 16 (**CONFIG**) to enter the **CONFIG** view. The **CONFIG** setting to edit is selected by a combination of the **PAGE** toggle and the **PGM 1-16** buttons.

For example, to select the Knob Modes setting from the table for editing:

- » Enter **CONFIG** view by pressing **SETTINGS** and then PGM button 16 (**CONFIG**)
- » Press **PAGE LEFT** so that **LED 32** is lit – indicating you are on page 2 of the **CONFIG** options
- » Press **PGM** button 2 to select **CONFIG** option 2 on page 2 (Knob Modes). **PGM** button 16 will slowly flash to indicate you are in **CONFIG** view while **PGM** button 2 will quickly flash to indicate the currently selected **CONFIG** option
- » Press **PGM** button 3 to select the **PASS THRU** Knob Mode
- » Press **SETTINGS** to confirm your selection and exit **CONFIG** view.

The table below shows each **CONFIG** option and whether it is stored on a per-patch or global basis.

LOCATION (PAGE, PGM)	NAME	GLOBAL/ PER-PATCH	DESCRIPTION
1.1	Pitch Bend Up Range	Patch	Each PGM button represents +1 semitone of pitch bend. After 12 semitones: PGM 13 = +14 semitones (2nd above octave) PGM 14 = +17 semitones (4th above octave) PGM 15 = +19 semitones (5th above octave) PGM 16 = +24 semitones (2 octaves)
1.2	Pitch Bend Down Range	Patch	Each PGM button represents -1 semitone of pitch bend. After 12 semitones: PGM 13 = -17 semitones (5th below octave) PGM 14 = -19 semitones (4th below octave) PGM 15 = -22 semitones (2nd below octave) PGM 16 = -24 semitones (2 octaves)
1.3	Glide Config	Patch	PGM 1 = Legato Glide On (lit) Off (unlit) PGM 2 = Gated Glide On (lit) Off (unlit) PGM 14-16 selects glide type PGM 14 = Exponential PGM 15 = Linear Constant Rate PGM 16 = Linear Constant Time
1.4	LFO Range	Patch	PGM 1 = 0.05Hz - 12Hz PGM 2 = 0.5Hz - 120 Hz PGM 3 = 5 Hz – 1.2 kHz
1.5	Envelope Modes	Patch	PGM 1 = Filter Envelope Reset On (lit) Off (unlit) PGM 2 = Amplitude Envelope Reset On (lit) Off (unlit) PGM 3 = Cumulative Amplitude Envelope On (lit) Off (unlit)
1.6	ARP Rest/Skip Modes	Patch	PGM 1 = Rest PGM 2 = Skip
1.7	SEQ Mode	Patch	PGM 1 = Play SEQ at press of PLAY button PGM 2 = Play SEQ at transposing KB keypress (HOLD button toggles between momentary or latched playback)
2.1	Note Priority	Global	PGM 1 = Last Played PGM 2 = Low Note Priority PGM 3 = High Note Priority

LOCATION (PAGE, PGM)	NAME	GLOBAL/ PER-PATCH	DESCRIPTION
2.2	Knob Modes	Global	PGM 1 = Relative PGM 2 = Snap PGM 3 = Pass Thru
2.3	Preset Exclusion	Global	PGM 1 = Use Preset Volume On (lit) Off (unlit) PGM 2 = Use Preset Mod Wheel Setting On (lit) Off (unlit) PGM 3 = Use Preset KB Octave On (lit) Off (unlit)
2.4	Sequencer Modes	Global	PGM 1 = Reset at PLAY PGM 2 = Do not Reset at PLAY PGM 3 = Output SEQ at MIDI On (lit) Off (unlit) PGM 4 = Output KB at MIDI during SEQ playback On (lit) Off (unlit)
3.1	Local Control	Global	PGM 1 = Local KB On (lit) Off (unlit) PGM 2 = Local Wheels On (lit) Off (unlit) PGM 3 = Local Panel On (lit) Off (unlit)
3.2	Program Change	Global	PGM 1 = Send On (lit) Off (unlit) PGM 2 = Receive On (lit) Off (unlit)
3.3	MIDI Clock Settings	Global	PGM 1 = Respect Start/Stop (lit) Ignore Start/Stop (unlit)
3.4	MIDI I/O	Global	PGM 1 = MIDI In OFF PGM 2 = MIDI In DIN only PGM 3 = MIDI In USB only PGM 4 = MIDI In DIN + USB PGM 5 = MIDI Out Off PGM 6 = MIDI Out DIN Only PGM 7 = MIDI Out USB Only PGM 8 = MIDI Out DIN + USB PGM 9 = USB MIDI Merge Off PGM 10 = USB In to DIN Out only PGM 11 = USB to USB only PGM 12 = USB In to DIN out + USB PGM 13 = DIN MIDI Merge Off PGM 14 = DIN In to DIN Out only PGM 15 = DIN In to USB only PGM 16 = DIN In to DIN Out + USB
3.5	MIDI Out Filter	Global	PGM 1 = Filter Off PGM 2 = Send all except Volume PGM 3 = Send KB + Wheels only PGM 4 = Send Note Data only
3.6	Send Current Preset		Execute
3.7	Send All Presets		Execute
4.15	Restore Global Settings (No Preset Restore)		Hold for 1 to 2 seconds to execute
4.16	Restore All Factory Settings		Hold PGM 1 + 16 for 5 seconds to execute

FIRMWARE UPDATES AND PRESET MANAGEMENT

From time to time firmware updates will be released to expand the capabilities of Messenger. Firmware updates are accomplished by downloading the firmware update package from our website and connecting your Messenger to a computer via USB.

Once Messenger is connected to your computer run the firmware updater program by either opening the .dmg file (Mac) or running the .exe file (Windows). Follow the on-screen instructions and, when finished, you may disconnect Messenger from your computer.

Patches can be exported from Messenger via SysEx. You may export the current patch from Messenger by going into the **CONFIG** menu, executing the Send Current Preset command (see **SETTINGS** section above), capturing the transmitted SysEx message in a program such as MIDI Monitor, and saving the SysEx message as a .syx file on your computer.

Patches on your computer as .syx files may be sent to Messenger via a program such as SysEx Librarian. Once the SysEx file has been sent the preset will be active on Messenger but you will have to save it via the **SAVE** button for later recall.

SPECIFICATIONS

TYPE:	Monophonic Analog Synthesizer
SOUND ENGINE	Analog
NUMBER OF KEYS	32
TYPE OF KEYS	Semi-Weighted with Velocity and Aftertouch
CONTROLLERS	Pitch Bend, Mod Wheel, Velocity, Aftertouch
POLYPHONY	Monophonic
ANALOG SOUND SOURCES	2x Variable Waveshape Voltage-Controlled Oscillators with Wavefolder, 1x Variable Waveshape Sub Oscillator, 1x Analog White Noise Generator, 1x External Input/Mixer Feedback
ANALOG SIGNAL PROCESSORS	1x Voltage-Controlled Multimode Moog Transistor Ladder Filter with Selectable Resonance Compensation, 1x Voltage-Controlled Amplifier
ENVELOPES	2x ADSR Loopable Envelopes
LFOS	1x Selectable Waveshape LFO (LFO 1), 1x Triangle Wave LFO (LFO 2)
PRESETS	256 patches - 16 banks, 16 patches per bank
ARPEGGIATOR/SEQUENCER	64 step sequence saveable per-patch
AUDIO INPUT	1x 6.5mm TS
AUDIO OUTPUT	1x 6.5mm TS, 1x 6.5mm TRS Headphone
MIDI I/O	DIN In, DIN Out, USB-C
CV/GATE CONNECTIONS	6x 3.5mm TS - CV/Gate In, CV/Gate Out, Analog Clock In/Out
PEDAL INPUTS	Sustain, Expression (6.5mm TRS)
WEIGHT	4.95 kg / 10.91 lbs
DIMENSIONS	58.50 width x 32.16 depth x 9.65 height (cm) 23.03 width x 12.66 depth x 3.80 height (inches)
POWER	Included 12V DC (Center Positive) Power Supply, 100-240V AC 50/60 Hz

SERVICE & SUPPORT

MOOG'S STANDARD WARRANTY

Moog warrants its products to be free of defects in materials or workmanship and conforming to specifications at the time of shipment. The Warranty Period is one year from the date of purchase. If, in Moog's determination, it has been over five years since the product shipped from our factory, it will be at Moog's discretion whether to honor the warranty regardless of the purchase date. During the Warranty Period, any defective products will be repaired or replaced, at Moog's option, on a return-to-factory basis. This warranty covers defects that Moog determines are not the fault of the user.

The Moog Limited Warranty applies to USA purchasers only. Outside the USA the warranty policy and associated service is determined by the laws of the country of purchase and supported by our local authorized distributor.

A listing of our authorized distributors is available at www.moogmusic.com.

If you purchase outside of your country, you can expect to be charged for warranty as well as non-warranty service by the service center in your country.

RETURNING YOUR PRODUCT TO MOOG MUSIC

You must obtain prior approval in the form of an RMA (Return Material Authorization) number from Moog before returning any product. Email techsupport@moogmusic.com for an RMA number. All products must be packed carefully and shipped with the Moog supplied power adapter. Messenger must be returned in the original inner packing including the cardboard inserts. The warranty may not be honored if the product is not properly packed. Once you have received the RMA number and carefully packed your Moog Messenger, ship the product to Moog Music with transportation and insurance charges paid, and be sure to include your return shipping address.

WHAT WE WILL DO

Once received, we will examine the product for any obvious signs of user abuse or damage as a result of transport. If the product was abused, was damaged in transit, or is out of warranty, we will contact you with an estimate of the repair cost. If warranty work is performed, Moog will ship and insure your product to your United States address free of charge.

HOW TO INITIATE YOUR WARRANTY

Please initiate your warranty online at www.moogmusic.com/register. If you do not have web access, please call (828) 251-0090 to register your product.

CARING FOR MESSENGER

Clean Messenger with a soft, dry cloth only—do not use solvents or abrasive detergents. Heed the safety warnings at the beginning of the manual. Do not drop the unit.

AN IMPORTANT NOTE ABOUT SAFETY: There are no user serviceable parts in Messenger. Refer all servicing to qualified personnel only.

Phone: +1 (828) 251-0090 | Email: info@moogmusic.com | Website: www.moogmusic.com

APPENDIX A: MIDI

NAME	TRANSMIT	RECEIVE	NOTES
BASIC INFORMATION			
MIDI Channels	1--16	1--16	
Note Numbers	0--127	0--127	
Program Change	1--128	1--128	
Bank Select Response	Yes	Yes	
Modes Supported: Mode 1: Omni-On, Poly	Yes	Yes	
Mode 2: Omni-On, Mono	Yes	Yes	
Mode 3: Omni-Off, Poly	Yes	Yes	
Mode 4: Omni-Off, Mono	Yes	Yes	
Multi Mode	No	No	
Note-On Velocity	Yes	Yes	
Note-Off Velocity	No	No	
Channel Aftertouch	Yes	Yes	
Poly (Key) Aftertouch	No	No	
Pitch Bend	Yes	Yes	
Active Sensing	No	No	
System Reset	No	No	
Tune Request	No	No	
Universal SysEx: Sample Dump Standard	No	No	
Device Inquiry	No	Yes	
File Dump	No	No	
MIDI Tuning	No	Yes	
Master Volume	Yes	Yes	
Master Balance	No	No	
Notation Information	No	No	
Turn GM1 System On	No	No	
Turn GM2 System On	No	No	
Turn GM System Off	No	No	
DLS-1	No	No	
File Reference	No	No	
Controller Destination	No	No	
Key-Based Instrument Ctrl	No	No	
Master Fine/Coarse Tune	No	Yes	
Other Universal System Exclsuive	No	No	
Manufacturer or Non-Commercial System Exclusive	Yes	Yes	*No documentation for manufacturer sysex at this time (factory calibration, etc.)
NRPNs	No	No	
RPN 00 (Pitch Bend Sensitivity)	No	Yes	
RPN 01 (Channel Fine Tune)	No	Yes	
RPN 02 (Channel Coarse Tune)	No	Yes	
RPN 03 (Tuning Program Select)	No	Yes	Values 0--32 are valid; 0 = standard tuning (12-tone equal temperament). 1--32 are available for user storage of tuning using the MIDI tuning standard.

NAME	TRANSMIT	RECEIVE	NOTES
RPN 04 (Tuning Bank Select)	No	No	
RPN 05 (Modulation Depth Range)	No	No	
MIDI TIMING AND SYNCHRONISATION			
MIDI Clock	Yes	Yes	
Song Position Pointer	Yes	Yes	
Song Select	No	No	
Start	Yes	Yes	
Continue	No	Yes	
Stop	Yes	Yes	
MIDI Time Code	No	No	
MIDI Machine Control	No	No	
MIDI Show Control	No	No	
EXTENSIONS COMPATIBILITY			
General MIDI Compatible (Level(s)/No)	No	No	
Is GM default power up mode (Level / No)	No	No	
DLS Compatible (Level(s) / No)	No	No	
DLS File (Type(s) / No)	No	No	
Standard MIDI Files (Type(s) / No)	No	No	
XMF Files (Type(s) / No)	No	No	
SP-MIDI Compatible	No	No	
PARAMETERS	CC # (MSB)	CC # (LSB)	VALUES
Mod Wheel	1	33	MIN TO MAX (0 to 16383)
Tempo	2	34	MIN TO MAX (0 to 16383) --[Mapped range is 30BPM to 300BPM and BPMs always round to nearest integer value]
LFO 1 Rate	3	35	MIN TO MAX (0 to 16383)
LFO 1 Depth	4	36	[-]MAX TO [+]MAX (0 to 16383 BIPOLAR; 8192 = 0 AMOUNT)
Glide Rate	5	37	MIN TO MAX (0 to 16383)
Data Entry	6	38	MIN TO MAX (0 to 16383)
Master Volume	7	39	MIN TO MAX (0 to 16383)
Noise Level	8	40	MIN TO MAX (0 to 16383)
OSC 1 Waveshape	9	41	MIN TO MAX (0 to 16383)
OSC Tune	10	42	[-]MAX TO [+]MAX (0 to 16383 BIPOLAR; 8192 = 0 SEMITONES)
Expression Pedal	11	43	MIN TO MAX (0 to 16383)
OSC 2 Freq	12	44	[-]MAX TO [+]MAX (0 to 16383 BIPOLAR; 8192 = 0 SEMITONES)
OSC Mod Amount	13	45	[-]MAX TO [+]MAX (0 to 16383 BIPOLAR; 8192 = 0 AMOUNT)
OSC 2 Waveshape	14	46	MIN TO MAX (0 to 16383)
OSC 1 Level	15	47	MIN TO MAX (0 to 16383)
OSC 2 Level	16	48	MIN TO MAX (0 to 16383)
Sub OSC Level	17	49	MIN TO MAX (0 to 16383)
FB/Ext In Level	18	50	MIN TO MAX (0 to 16383)
Filter Cutoff	19	51	MIN TO MAX (0 to 16383)

NAME	TRANSMIT	RECEIVE	NOTES
OSC 2 - Cutoff Amount	20	52	MIN TO MAX (0 to 16383)
Filter Resonance	21	53	MIN TO MAX (0 to 16383)
Filter EG Amount	22	54	[-]MAX TO [+]MAX (0 to 16383 BIPOLAR; 8192 = 0 AMOUNT)
Filter EG Attack	23	55	MIN TO MAX (0 to 16383)
Filter EG Decay	24	56	MIN TO MAX (0 to 16383)
Filter EG Sustain	25	57	MIN TO MAX (0 to 16383)
Filter EG Release	26	58	MIN TO MAX (0 to 16383)
LFO 2 Rate	27	59	MIN TO MAX (0 to 16383)
Amp EG Attack	28	60	MIN TO MAX (0 to 16383)
Amp EG Decay	29	61	MIN TO MAX (0 to 16383)
Amp EG Sustain	30	62	MIN TO MAX (0 to 16383)
Amp EG Release	31	63	MIN TO MAX (0 to 16383)
Sustain Pedal	64	-	0-63 = OFF; 64-127 = ON
Sub OSC Waveshape	71	-	MIN TO MAX (0 to 127)
OSC Mod Destination	72	-	0-31 = 1--2 FM; 32-64 = F ENV--OSC 2 FREQ; 64-95 = F ENV--OSC 2 WAVE; 96-127 = F ENV--SUB WAVE
Hold	73	-	0-63 = OFF; 64-127 = ON
MPE 3rd Dimension of Control	74	-	On/Off via MPE Activation message RPN 6
OSC 1 Octave	75	-	0-31 = 4'; 32-63 = 8'; 64-95 = 16'; 96-127 = 32'
OSC 2 Octave	76	-	0-31 = 4'; 32-63 = 8'; 64-95 = 16'; 96-127 = 32'
SYNC 2-1	77	-	0-63 = OFF; 64-127 = ON
Filter KB Tracking	78	-	0-42 = 0; 43-84 = 2/3; 85-126 = 1:1
Filter Res Bass	79	-	0-63 = OFF; 64-127 = ON
F ENV VELocity	80	-	0-63 = OFF; 64-127 = ON
A ENV VELocity	81	-	0-63 = OFF; 64-127 = ON
LFO 1 Waveshape	83	-	0-31 = TRIANGLE; 32-63 = SAW; 64-95 = RAMP; 96-127 = SQUARE
LFO1 Destination	85	-	0 = CUTOFF 32 = OSC 2 FREQ 64 = OSC WAVE 96 = SUB WAVE
KB Octave Up & Down	89	-	0-25 = -2 OCTAVES 26-50 = -1 OCTAVE 51-75 = 0 OCTAVE 76-100 = +1 OCTAVE 101-127 = +2 OCTAVES
LFO KB Reset	93	-	0-63 = OFF; 64-127 = ON
LFO SYNC	102	-	0-63 = OFF; 64-127 = ON
Pitch Bend Up Amount	107	-	0-24 (SEMITONES)
Pitch Bend Down Amount	108	-	0-24 (SEMITONES)
Filter Mode	109	-	0-31 = 4P LP, 32-63 = 2P LP, 64-95 = BP, 96-127 = HP
F ENV LOOP	112	-	0-63 = OFF; 64-127 = ON
A ENV LOOP	113	-	0-63 = OFF; 64-127 = ON

NAME	TRANSMIT	RECEIVE	NOTES
Multitrig	114	-	0-63 = SINGLE TRIG; 64-127 = MULTITRIG
LFO 2 - Pitch	116	-	0-63 = OFF; 64-127 = ON
LFO 2 - Cutoff	117	-	0-63 = OFF; 64-127 = ON
LFO 2 - Amp	118	-	0-63 = OFF; 64-127 = ON

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