



MUSE

FIRMWARE 1.4.0

Release Notes

HIGHLIGHTS

Firmware update 1.4.0 for Muse is a major update containing many new features and performance improvements. Global modulation sources have been added, providing 6 new modulation sources - 2 global LFOs, 2 global envelopes, and 2 global random trigger sources. 23 modulation destinations have been added for use with the new global modulation sources including all parts of the Diffusion Delay, vastly increasing the timbral capabilities and sonic complexities achievable. New Fade functions available in the Mod Map allow for modulation to fade in or out over the course of a note, giving access to powerful within-note patch transformations.

MIDI integration has been overhauled with full sync functionality, configurable program changes, and more. Sync to external analog clock has been enhanced with PER-STEP advance mode and new filter LINK MODEs allow for macro control of both filters. Many additional quality-of-life improvements have been added system wide including selectable knob modes, global tuning settings, and patch scrolling via the SELECT encoder. Numerous bug fixes make Muse firmware 1.4.0 the most reliable and stable firmware yet. Included in this package are a handful of new banks of patches utilizing many of the new features detailed above. Also included is the Muse manual which has been revised for v1.4.0 and includes information on all newly added features.

NOTE: After installing v1.4.0, Muse will perform a (very short) panel update when you start Muse back up and will advise that you need to power cycle Muse again. This is expected! Simply turn Muse back off when the screen tells you to, wait a few seconds, and then turn Muse back on.

ANOTHER NOTE: Muse v1.4.0 includes the useful new feature of the SHIFT button latching after a quick press - increasing accessibility to the instrument and making fine tuning easier. This new feature takes some getting used to - if it seems the panel controls have a limited range first check the SHIFT button to ensure it is not latched.

ABOUT GLOBAL MODULATION

As the Diffusion Delay is a global signal processor, 6 new global modulation sources - G LFO1, G LFO2, G EG1, G EG2, G RAND TRIG 1, G RAND TRIG 2 - have been introduced to allow for modulation of all parameters of the Diffusion Delay. This opens up a whole new world of sonic possibilities in Muse from pitch-shifting choruses and randomly modulation diffuse spaces to dynamic delay sends or aftertouch feedback control.

The global LFOs, envelopes, and triggered random sources function just as their normal counterparts do on Muse and have all the same parameters - they simply exist on a global basis and are shared by both timbres. In either LFO or envelope MORE menu, the ASSIGNABLE CONTROLLERS MORE menu, or in the MOD MAP you will see a new button labeled G MOD EDIT. Turning on G MOD EDIT will set the LFO, envelope, and ASSIGNABLE CONTROLLERS triangular MORE menu buttons flashing indicating the panel controls and MORE menus for these modules now control the global modulation sources. Disable G MOD EDIT to return all modules to their normal functionality.

FIRMWARE AND LIBRARY UPDATE PROCEDURE

This download consists of a 'moog-muse-firmware.bin' file which contains the updated v.1.4.0 firmware as well as these release notes.

Register your instrument at moogmusic.com and navigate to the Presets area where, if you haven't already, you can find the 001 and 002 libraries of patches and sequences for Muse from launch.

Muse update 1.4 contains a handful of new patch banks for Muse which all utilize the new features of 1.4 in some way or another. They are grouped into banks but you may put them into your Muse library however you choose. You must, however, preserve the same library format - e.g. library/bank01/patch01/voxhumana.mmp. There must be only 16 banks and only 16 patch folders in each bank - only one patch file may occupy a given patch location.

Firmware updates and patch/sequence library management are accomplished via DISK MODE.

To enter DISK MODE:

Power off Muse.

Connect your computer to the USB-B port on the rear of Muse.

Hold down the SELECT encoder on Muse and continue holding it down while powering on Muse. You may release the SELECT encoder once the PROGRAMMER screen reads DISK MODE.

!!! NOTE: Windows users may see a prompt that says "There is a problem with this drive, scan the drive now to fix it." Do not scan the drive as this may cause issues with your unit and will likely result in having to send it back for service. Either exit out of the pop-up prompt or wait a few moments and the message will go away on its own.

Muse will now appear on your computer as an external disk named MOOG_MUSE.

Once in disk mode, you may open the MOOG_MUSE disk to view its contents.

firmware contains the firmware binary file

library contains data for all patches and all sequences

util contains calibration data and should be ignored

To update the firmware of Muse, replace the 'moog-muse-firmware.bin' file in the 'firmware' folder in MOOG_MUSE with the 'moog-muse-firmware.bin' file found in this download. The 'firmware' folder MUST contain a single valid 'moog-muse-firmware.bin' file and nothing else for proper operation.

To update patches on Muse, replace the .mmp patch file in any patch location in the 'library' of MOOG_MUSE with any other .mmp patch file. Within each bank folder is a separate folder for each patch - inside of which is the patch data for that bank and patch location. Only one patch can be in a patch folder at a time. You may move around patches/sequences, rename them, back them up on your computer, and transfer new patches from your computer to Muse using DISK MODE, but you must retain the file structure in the library folder.

Once the firmware file and/or library directory have been updated:

Eject the MOOG_MUSE drive from your computer.

IMPORTANT: Safely ejecting Muse is critical to ensure all pending operations are completed and that the firmware is fully updated.

The PROGRAMMER screen will now read DISK MODE SESSION ENDED.

You're done! You may now power off Muse, disconnect it from the computer, and power it on as normal to begin using the new firmware.

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NEW FEATURES

DIFFUSION DELAY

- Modulation Destinations added: DELAY TIME R, DELAY TIME L, DELAY TIME LINKED, DELAY FEEDBACK, DELAY MIX, DELAY SEND, DELAY CUTOFF, DELAY MULTI-TAP, DELAY DIFFUSION AMOUNT, DELAY DIFFUSION MOD AMOUNT, DELAY DIFFUSION TIME
- DELAY SEND added to MORE menu

GLOBAL MODULATION

- 6 Global Modulation Sources added: G LFO 1, G LFO 2, G EG 1, G EG 2, G RAND TRIG 1, G RAND TRIG 2
- Modulation Destinations added: G LFO 1 RATE, G LFO 1 AMP, G LFO 2 RATE, G LFO 2 AMP, G EG1 ATTACK, G EG1 DECAY, G EG1 SUSTAIN, G EG1 RELEASE, G EG2 ATTACK, G EG2 DECAY, G EG2 SUSTAIN, G EG2 RELEASE
- G MOD EDIT soft buttons added to LFO 1, LFO 2, FILTER ENVELOPE, VCA ENVELOPE, and ASSIGNABLE CONTROLLERS MORE menus as well as MOD MAP for editing global modulation sources via panel
- MORE menus for G LFO 1, G LFO 2, G EG 1, G EG 2 accessible via G MOD EDIT soft button shortcuts
- TRIG SOURCE in G EG 1, G EG 2 MORE menus

LFO 1+2

- ENVELOPE MODE added to LFO 1, LFO 2, G LFO 1, G LFO 2 MORE menus
- RESET ON SEQ START added to LFO 1, LFO 2, G LFO 1, G LFO 2 MORE menus

PITCH LFO

- RESET ON SEQ START added to MORE menu

FILTERS

- LINK MODE added to MORE menu for configurable control of both filters simultaneously

MIXER

- OVERLOAD RANGE added to MORE menu

MOD MAP

- New functions FADE A (Attack), FADE D (Decay), FADE R (Release), FADE AR (Attack/Release) added
- New OFFSET source with +/- 2 octave range when set to 100% added

ASSIGNABLE CONTROLLERS

- AFTERTOUCH SENSITIVITY added to MORE menu
- G RAND TRIG 1 / 2 TRIG SOURCE added to MORE menu

CLOCK

- CLOCK IN MODE added to MORE menu adding external analog clock PER-STEP ARP/SEQ advance mode
- CLOCK IN PPQN added to MORE menu

MIDI

- MIDI CLOCK IN/OUT and START/STOP functionality fully implemented
- MIDI program change control over patches and sequences
- SEND/RECEIVE PGM CHANGE added to MIDI menu
- SEQ PGM CHNG CHANNEL added to MIDI menu to program change sequences independently of patches
- Output MIDI program change when patches are loaded via PATCH select buttons or sequence

NAVIGATION

- SELECT encoder scrolls through patches when in PATCH view
- KNOB MODE selection (ABSOLUTE, RELATIVE, PASSTHRU) added to MENU
- RESET GLOBAL SETTINGS TO DEFAULT operation added to MENU

TUNING

- GLOBAL TUNE offset added to TUNING menu (applied to OSC 1, OSC 2, MOD OSC, FILTER CUTOFFs)
- TUNING/CAL hidden until outer soft buttons held

SEQUENCER

- COPY steps and ranges of steps in STEP view. Select step to be copied, press COPY, select target step, press ENTER. To copy a group of steps, select the first step to be copied and while holding down COPY select the last step to be copied (all selected steps will now flash). Select the first step of the range to be copied to and press ENTER
- Double sequence length (SHIFT + PAGE RIGHT) and halve sequence length (SHIFT + PAGE LEFT). Non-destructive operations
- Double sequence length and duplicate step information (COPY + PAGE RIGHT) and destructively halve sequence length (COPY + PAGE LEFT)

IMPROVEMENTS

- Set destination to LINKED CUTOFF via quick assign if FILTER 2 CUTOFF knob is touched and LINK FILTERS is enabled
- SHIFT button now latches on quick press, toggling on/off. Holding SHIFT more than 500 milliseconds results in momentary switch
- ARP/SEQ follow phase of incoming external analog clock
- CLOCK OUT SOURCE and INT CLOCK DIV moved to CLOCK MORE menu
- MOD MAP amount/depth/function parameters default to integer value increments – use SHIFT for fine adjustments
- Make it easier to adjust to zero on MOD MAP amount/depth/function parameters
- Show MOD MAP FULL popup if user tries to assign modulation while all 16 mod slots are full
- Change INIT patch VCA EG ATTACK time to 1ms (from 8.5ms)
- Change INIT patch to default MULTI-TRIG ON for FILTER EG, VCA EG
- Add TIMBRE A/TIMBRE B soft buttons to PROB menu in STEP view – providing probability controls on a per-timbre basis
- Prevent collisions between MIDI IN channel numbers
- Slew/filtering applied to aftertouch MIDI output, matching filtering applied to panel knobs
- Show QUICK TUNE completion screen for 2 seconds before exiting to TUNING menu
- Note GESTURE encoder changes 5x faster
- When ARP is LOCKed reset loop position when MIDI transport start message received
- INIT SEQ workflow changed to match that of INIT PATCH workflow
- Destination mod slot selected after MOD MAP copy operation

BUG FIXES

- Fix bug where, with MULTI MODE enabled, a MIDI note off sent to one timbre was incorrectly also sent to the other timbre if both timbres had a note with that pitch
- Fix issue where list-based menu items will jump to the beginning of the list when first adjusted
- MOD MAP amount/depth/function param values no longer show positive and negative zero values
- Fix bug where SEQ would insert a rest before step 3
- Fixes to SEQ sync via external MIDI clock when external BPM changes
- Fix a bug where INT CLOCK DIV wasn't loaded from the user settings correctly

- Non-ARP notes from one timbre will no longer affect the velocity of ARP notes on the other timbre
- Fix bug with per-timbre LFO 1 and PITCH LFO hi and low rate limits going past each other

PREVIOUS CHANGES

CHANGES IN V1.3.0

New Features

- Add FIRMWARE UPDATE via USB A flash drive.

Improvements

- Significant system wide optimizations to reduce latency.
- Diffusion Delay audio fidelity improvements.
- Optimize Mod Map BOTH function destination significantly, improving system latency for patches that use BOTH.
- Improvements to SLEW function when FUNC DEST is set to BOTH.
- Improvements to CMPRTR, MAX CLIP, MIN CLIP, SYM CLP functions when FUNC DEST is set to CNTRL or BOTH and when either SOURCE or CNTRL are bipolar.

Bug Fixes

- Fixes to velocity - ensuring more consistent velocity response and no more zero-velocity initial keypresses from the local keyboard.
- Windows will no longer show an error message when in Disk Mode.
- Fix bug where unison mode produces extreme detuning when triggering voice for the first time on a timbre.
- Fix bug where learning chord notes when Stack was enabled would result in duplicate notes being added.

CHANGES IN V1.2.0

New Features

- Key maps added, allowing you to save up to 8 different chord mappings for KEY mode.
- KEY MAP item in MORE menu - selects between key maps 1 through 8.
- CLEAR CURRENT KEY MAP item in MORE menu - clears out the current key map (selected by the KEY MAP item above) when selected.
- MIDI PANIC soft button in the MIDI menu sends Note Off messages to all voices and SEQ and ARP, sends All Notes Off message to KEYBOARD MIDI OUT CHANNEL via USB/DIN and All Controllers Off message to KEYBOARD MIDI OUT CHANNEL and LHC MIDI OUT CHANNEL via USB/DIN.

Improvements

- CLOCK More Menu - Change ARP and SEQ START/STOP language to avoid double-negatives.

Bug Fixes

- Pressing ENTER or SELECT on empty menu item will no longer cause crash.

CHANGES IN V1.1.0

New Features

- In CLOCK MORE MENU, new option AUTO added to CLOCK SOURCE.
- MIDI CC map implemented – see APPENDIX A at the end of this document.
- Sustain pedal will output on MIDI CC64.
- Muse will now respond to incoming sustain pedal messages on MIDI CC64.
- Expression pedal connected to EXPRESSION IN will output on MIDI CC11. Voltages at EXPRESSION IN less than 0 V will not output MIDI CCs.
- Muse will now respond to incoming expression pedal messages on CC11. If an Expression pedal CC is received, the EXPRESSION mod map source will output that unipolar normalized CC value until the voltage at the EXPRESSION IN jack changes.
- Boot status screen displays progress as Muse powers on.

Improvements

- Boot time reduced to around 50 seconds with the factory library.
- Save PATCH when PROGRAMMER focused on BANK, PATCH, MOD MAP, or ARP views.
- Save SEQUENCE when PROGRAMMER focused on SEQ or STEP views.
- MORE menu buttons go back on second press.
- Improvements in BANK/PATCH and SEQ/SEQ BANK user interface indications.
- After receiving MIDI Stop message the ARPEGGIATOR can be re-enabled by toggling ARPEGGIATOR ON button off and back on.
- Use SUSTAIN IN POLARITY to make SUSTAIN PEDAL MOD MAP source be in the range 0% to 100% for both closed and open pedal types.
- Change USB PID for Moog Muse as a MIDI device to 0x1e51 to go along with Windows USB driver “Install Moog Music Muse 1.0.1.exe”. (It will still be 0x1e50 as a storage device).
- Change “MIDI function” to “Moog Muse” for Windows users that don’t have the driver installed.

Bug Fixes

- Make dirty asterisk on PATCH screen show after performing operations like COPY, ARRANGEMENT, and PANEL disable.
- Fix bug where moving the VALUE encoder on a non-parameter MORE menu item would result in the previous parameter item updating.
- Fix bug with incorrect LOW CUT saved value text.
- Change strings from CLIP to OVERLOAD for slider popup, quick assign screen destination, and MOD MAP destination.
- Fix clicks in DIFFUSION DELAY multitap CHARACTER parameter near 100%.

APPENDIX A: MIDI CC

MIDI CC	MUSE CONTROL	RANGE
1	Mod Wheel	0-127
3	Mute	0-63 off/ 64-127 on
5	Glide Time	0-127
7	Timbre Volume	0-127
8	Low Cut	0-127
9	Pan Spread	0-127
10	Pan	0-127
11	Expression	0-127
12	LFO 1 Rate	0-127
13	LFO 1 Amount	0-127
14	LFO 1 Waveform	0-127 0-24: TRIANGLE 25-49: SAW 50-74: SQUARE 75-99: RANDOM 100-127: USER WAVE
15	LFO 2 Rate	0-127
16	LFO 2 Amount	0-127
17	LFO 2 Waveform	0-127 0-24: TRIANGLE 25-49: SAW 50-74: SQUARE 75-99: RANDOM 100-127: USER WAVE
18	Pitch LFO Rate	0-127
19	Pitch LFO Shape	0-127
20	Pitch LFO Amount	0-127
21	Pitch LFO OSC 1	0-63 off/ 64-127 on
22	Pitch LFO OSC 2	0-63 off/ 64-127 on
23	Pitch LFO Mod Osc	0-63 off/ 64-127 on
24	Pitch LFO Detune	0-63 off/ 64-127 on
25	Modulation Oscillator Frequency	0-127
26	Modulation Oscillator Audio	0-63 off/ 64-127 on
27	Modulation Oscillator KB Track	0-63 off/ 64-127 on
28	Modulation Oscillator Waveform	0-127 0-24: SINE 25-49: SAWTOOTH 50-74: RAMP 5-99: SQUARE 100-127: NOISE
29	Modulation Oscillator KB Reset	0-63 off/ 64-127 on
30	Modulation Oscillator Unipolar	0-63 off/ 64-127 on
31	Modulation Oscillator Pitch Amount	0-127
33	Modulation Oscillator Pitch OSC 1	0-127
34	Modulation Oscillator Pitch OSC 2	0-127
35	Modulation Oscillator PWM Amount	0-127
36	Modulation Oscillator PWM OSC 1	0-127
37	Modulation Oscillator PWM OSC 2	0-127

APPENDIX A: MIDI CC *(Cont.)*

MIDI CC	MUSE CONTROL	RANGE
39	Modulation Oscillator Filter Amount	0-127
40	Modulation Oscillator Filter 1	0-127
41	Modulation Oscillator Filter 2	0-127
42	Modulation Oscillator VCA Amount	0-127
43	Modulation Oscillator VCA PAN	0-127
44	Oscillator 1 Octave	0-127 0-31: 16' 32-63: 8' 64-95: 4' 96-127: 2'
45	Oscillator 1 Frequency	0-127
46	Oscillator 1 Tri/Saw Mix	0-127
47	Oscillator 1 PW	0-127
48	Oscillator 1 Wave Mix	0-127
49	Oscillator 2 Octave	0-127 0-31: 16' 32-63: 8' 64-95: 4' 96-127: 2'
50	Oscillator 2 Frequency	0-127
51	Oscillator 2 Tri/Saw Mix	0-127
52	Oscillator 2 PW	0-127
53	Oscillator 2 Wave Mix	0-127
54	Oscillator 2>1 SYNC	0-63 off/ 64-127 on
55	Oscillator 2>1 FM	0-63 off/ 64-127 on
56	Oscillator 1>2 FM	0-63 off/ 64-127 on
57	FM Amount	0-127
58	Oscillator 1 Level	0-127
59	Oscillator 2 Level	0-127
60	Ring Mod Level	0-127
61	Modulation Oscillator Level	0-127
62	Noise Level	0-127
64	Sustain Pedal	0-63 off/ 64-127 on
65	Clipping Level	0-127
66	Filter 1 High Pass	0-127
67	Filter 1 Cutoff	0-127
68	Filter 1 Resonance	0-127
69	Filter 1 Envelope Amount	0-127
70	Filter 1 KB Tracking	0-127 0-42:OFF 43-84:HALF 85-127:FULL
71	Hold	0-63 off/ 64-127 on
72	Filter 2 Frequency	0-127
73	Filter 2 Resonance	0-127
75	Filter 2 Envelope Amount	0-127

APPENDIX A: MIDI CC *(Cont.)*

MIDI CC	MUSE CONTROL	RANGE
76	Filter 2 KB Tracking	0-127 0-42:OFF 43-84:HALF 85-127:FULL
77	Link Filters	0-63 off/ 64-127 on
78	Filters Order	0-127 0-42:SER 43-84:STR 85-127:PAR
79	Filter Env Attack	0-127
80	Filter Env Decay	0-127
81	Filter Env Sustain	0-127
82	Filter Env Release	0-127
83	Filter Env Loop	0-63 off/ 64-127 on
85	Filter Env Velocity	0-63 off/ 64-127 on
86	VCA Env Attack	0-127
87	VCA Env Decay	0-127
88	VCA Env Sustain	0-127
89	VCA Env Release	0-127
90	VCA Env Loop	0-63 off/ 64-127 on
91	VCA Env Velocity	0-63 off/ 64-127 on
92	Voice Detune	0-127
93	Delay Time Left	0-127
94	Delay Time Right	0-127
95	Link Delays	0-63 off/ 64-127 on
102	Delay Clock Sync	0-63 off/ 64-127 on
103	Delay Feedback	0-127
104	Delay Character	0-127
105	Delay Mix	0-127
106	Delay Timbre A	0-63 off/ 64-127 on
107	Delay Timbre B	0-63 off/ 64-127 on
108	Voice Unison	0-63 off/ 64-127 on
109	Voice Mono	0-63 off/ 64-127 on
110	Sequencer Clock Div	0-127
111	Arpeggiator Clock Div	0-127
112	Arpeggiator On/Off	0-63 off/ 64-127 on
113	Arpeggiator FW/BK	0-63 off/ 64-127 on
114	Arpeggiator Direction	0-127 0-42:ODR 43-84:PTN 85-127:RND
115	Arpeggiator Octave Range	0-127 0-31:1 32-63:2 64-95:3 96-127:4
116	Clock Tempo	0-127

