CHANGES FOR ARPIE 6 RELEASE FIRMWARE (Beta version 5.3)

Do not pass notes through in MIDI transpose mode

Previously, MIDI notes on the original input channel would be thru'd to the output when the ARPIE was in MIDI transpose mode. This behaviour was incorrect (this thru function should apply only to the MIDI lockout mode). This has been fixed in v6.x

Handle poly aftertouch correctly

While ARPIE does not process polyphonic aftertouch messages, it should be able to pass then thru to output when in appropriate modes. Due to a bug, poly aftertouch messages might previously have been dropped or corrupted while passing through the ARPIE. This has been fixed in v6.x

Allow specific MIDI note off message

The MIDI specification defines both a "note on" (0x90) and a "note off" message (0x80), however many MIDI sending devices (including ARPIE) use a zero velocity "note on" message in place of a note off message to stop a note playing, since this allows better bandwidth savings from "running status" (when many messages of the same type are sent consecutively)

Some older synths might need a "real" note off message to stop notes playing. ARPIE can now support this via a new option in the Log Press SYNC menu (LED lit = use NOTE OFF, LED unlit = use zero velocity NOTE ON). Zero velocity NOTE ON should be used where possible since it reduces the amount of MIDI traffic.

Change To Pattern Layer Selection

In previous versions of the firmware, the additional pattern layers (accent etc) would be accessed by first selecting the "pattern layer 2" mode (Long Press MODE, rightmost buttons) then long pressing PATN to get into editing the second layer.

Now these additional layers can be accessed more quickly by simply holding PATN and pressing one of the following

PATN + Button Press…	**Accesses pattern layer…**
Rightmost button	ACCENT
2nd from right	GLIDE
3rd from right	TIE
4th from right	OCTAVE UP
5th from right	OCTAVE DOWN
6th from right	FOURTH DOWN
7th from right	PLAY-THROUGH

This immediately allows you to edit the pattern for that layer. This layer remains the active one until PATN is pressed again

Press and release PATN to return to the normal (trigger/mute) layer

When editing a secondary layer a dim LED colour at a step indicates that step is active in either the trig/mute layer or the secondary layer but not both (so the step does not have an effect)

A medium brightness LED colour at a step indicates that step is active in both the trig/mute layer and the secondary layer so it is active

Hack Header Mode Selection

The basic function of the hack header is now selected from the firmware version screen and only specific options for the selected header function are now selected on the long-press PLEN menu screen.

To access the version screen, press the RESET button or power up the ARPIE while HOLD is pressed. As before, ARPIE shows the firmware version in binary, representing four decimal digits (Four LED groupings 1-4, 5-8, 9-12, 13-16 each make up one digit). Now, however - while in this display, you can select the hack header mode by pressing one of the data buttons below the LEDs.

Button	Basic Hack Header Function	Hack Header Modes (Long press PLEN)
1	None	n/a
2	Attached pots and switches / External CONTROL TAB board	LEDs 2-8 are mapped as in previous versions LED 1 not used
3	Pulse clock in and out / SYNC TAB daughter board	LED 1 controls clock rate 0 = 16th note steps 1 = 8th notes steps
4	Pulse clock out, gate out, CV out plus 16 slot patch memory (CV TAB daughter board)	LED 1 settings as for pulse clock (above) LED 8 = Calibration mode
5	16 slot patch memory (MEMO TAB daughter board)	n/a

After pressing 1-5 and releasing HOLD, the current hack header function will be indicated on LEDs 1 through 5. You can press LED 15 to view the selected hack header function without changing it.

Each function of the hack header defines its own meaning of LEDs 1-8 on the Long Press PLEN menu (as defined in the table above). When the basic hack header function is changed all these setting are defaulted to zero.

Patch Load/Save/Clear

The CV TAB and MEMO TAB are new hardware daughter boards which fit inside the ARPIE and connect to the 6-pin “hack header” socket. Attaching either of these boards makes available an 8k EEPROM memory chip which can be used to save the status of the arpeggiator engine and recall it later.

Currently a total of 16 snapshot slots (i.e. “patches”) can be stored. New menu options are provided to (a) Save current ARPIE state to a slot (b) Load the state back again (c) Clear the data in a slot. For these new functions to be accessible, the hack header mode of ARPIE must be set to CV TAB or MEMO TAB mode (see above)

A new “shifted” menu option can now be used where you hold down the HOLD button like a shift key and press one of the other menu options. Please note holding the HOLD button for a couple of seconds will activate the hold second function (LED starts blinking) after which the shift function is cancelled– this means that to use HOLD as a shift key, the second key must be pressed immediately after HOLD

To save the ARPIE state as a patch, press down HOLD, then quickly press PLEN. The screen changes to show the slot status. Press one of the slot buttons to save the current ARPIE state to that slot. If there is already data in the slot it will be overwritten. You can save to multiple slots without having to press HOLD+PLEN again. Press a menu button (e.g. PATN) to exit from patch save mode.

To load the ARPIE state from a previous patch, press down HOLD, then quickly press PATN. The screen changes to show the slot status. Press one of the brighter lit (occupied) slot buttons to load the ARPIE state from that slot. The HOLD LED will automatically be engaged when the patch is loaded, so that the chord saved with the patch is not lost. You can press HOLD again to exit hold mode and clear the chord. To exit from the slot status display without loading a patch, just press another menu button (e.g. PATN)

To save the ARPIE state as a patch, press down HOLD, then quickly press PLEN. The screen changes to show the slot status. Press one of the slot buttons to save the current ARPIE state to that slot. If there is already data in the slot it will be overwritten. You can save to multiple slots without having to press HOLD+PLEN again. To exit from the slot status display without loading a patch, just press another menu button (e.g. PATN)

To clear one or more slots, press down HOLD, then quickly press MODE. The screen changes to show the slot status. Press one of the brighter lit (occupied) slot buttons to clear it. You can clear out multiple slots without having to press HOLD+MODE again. To exit from the slot status display just press another menu button (e.g. PATN)

Hack Header Settings For CVTab

When the CV TAB is selected as the active hack header device (see above) the following setting can be used in hack header settings (long press PLEN)

LED position	Name	Usage
Leftmost	**CLOCK DIVISION**	When ACCENT is OFF: OFF – The clock outputs 1/16th beat tick ON – The clock outputs 1/8th beat tick These settings can also be used with the SYNC TAB
2nd from left	**ACCENT**	OFF – the clock output functions as clock ON – the clock output function as accent trigger, based on the accent secondary layer (you could also use this as an irregular clock tick etc)
8th from left	**CALIBRATE**	OFF – CV TAB calibration values are protected ON - CV TAB calibration values are unprotected (see below). This setting turns off automatically when reset or powered off

CV Tab Functionality

The CV TAB outputs a 1V/octave pitch control voltage (range 0-8V) representing the current arpeggiated note. If notes are tied (legato play), a pitch glide takes place from the previous note value to the new one (this is a linear voltage glide between the two levels over 1 sequencer step time period)

A +10V gate signal is output, based on the selected arpeggiator GATE duration. A second +10V signal can be assigned to clock or accent trigger output.

The board connects to the “hack header” via a pin header strip (only one “tab” daughter board can be connected at a time). The 10V level for the gates is generated on the tab from the +5V power by a charge pump circuit. The tab also contains a 12 bit DAC, output buffer circuits and an 8kB EEPROM for patch storage.

CV Tab Calibration

The CV TAB maps an 8 octave range to a 12-bit DAC resolution. The firmware allows compensation for any analog offset or gain error in the analog output buffer.

The CV TAB is factory calibrated, so you should not usually need to change this information

A 7 bit gain compensation allows +/-63 DAC units to be added to the full voltage range

Set to calibration mode via hack header settings (LED 8) when CV Tab is selected. You can also turn off calibration mode in the same way. If you do this before saving calibration (CC73), no change is made to the settings stored on the CV TAB

MIDI CC (Arpie input channel)	**Action**	**MIDI CC Value**
70	Set scale compensation	0-127 map to -63..0..+63. 64 is no compensation
71	Set offset compensation	0-127 map to -63..0..+63. 64 is no compensation
72	Set CV	MIDI note number (0-127)
73	Done. Save EEPROM settings and turn off calibration mode	Any

The CV Tab calibration settings are stored on the CV TAB itself. Each CV TAB is factory calibrated before sale.