Model 220e Polyphonic Touch'n'Run Voltage Array

firmware version 1.0.4

Up-to-four-voice truly polyphonic, freely tuneable and scalable, pressure sensitive touch controller with vast sequencing capabilities. Like in early 100 and 200 series controllers, the censor design is discrete analogue. Control buttons are arranged in coloured groups for convenience.

HOLD - Memorizes activated keys and can reactivate them if pressed again.

Poly, **Duo**, **Mono** - Switches the priority logic into respective mode that becomes some kind of global prism for key interpreter engine throughout the system. Each mode has several submodes selectable by holding button in question and touching appropriate key (0, 1, 2).
hint - For current firmware version, there're three submodes for each mode.

Random, **Shuttle**, **<-** , **->** , **Actikey** - Defines the directional behaviour of the sequencer/arpeggiator, applicable to almost every situation, with very few exceptions. The fifth direction **Actikey** dictates the keys to be played exactly the same order they were activated. One of the following modes has to be recalled to get to sequencer/arpeggiator: **Actikey**, **Zoning** or **Combo**. Holding **Random** and touching a key creates the probability bell where events happen more frequently, several bells can be created.
hint - When in **Actikey**, user can easily switch to one of four directions by pressing appropriate button and then revert back to **Actikey** mode by pushing **Actikey** again.

Zoning - One finger splits the sequencer databank into two zones, second finger immediately defines loop, three fingers make four independent sequences. ***Poly***, ***Duo***, ***Mono*** buttons work in different manner in this mode. ***Poly*** and ***Mono*** change the outputs' engagement while ***Duo*** button makes the pattern act asynchronously from zone to zone.

Keybrd - Press that button for live touch keyboard playing, no sequencer/arpeggiator is engaged.

Combo - Provides up-to-three-voice keyboard (***W***, ***X***, ***Y*** outputs) and arpeggiator on output ***Z***, sharing the common voltage databank. The arpeggiator tracery is taken whether from the last memorized ***Actikey*** or can be programmed by holding ***Combo*** button and touching keys, all in realtime.

Cluster - Allows every key to be whether a chord or an arpeggio, thus presenting the performance surface of 16 independent cells. This is the only mode that needs to be pre-programmed before use. Once the ***Cluster*** button is pressed the user chooses either ***Keybrd*** or ***Actikey*** and then the touch keys become available for activation. When needed keys are defined one can advance to the next cluster cell by pressing **->** button and repeat aforementioned actions. Later editing of programmed data is easily possible, with **<-** and **->** buttons. Pressing ***Cluster*** again confirms changes and permits playing. ***Cluster+Reset*** clears all slots.
hint - If ***Actikey*** is chosen for particular key, ***Poly***/***Mono*** mode selection also becomes an option.

Capture - This mode is much like the one that legendary Buchla Thunder had, now with all pressure and cv changes included. It records what is being played and plays it back. When the ***Capture*** button is pressed, the system gets ready and starts recording once a key is touched. User can initiate an immediate playback in any of two directions by pressing either **->** or **<-** button. Playback speed is adjustable during playback by activating touch keys with ***Capture*** button pressed, the first and the last keys expand the speed range, the key #8 sets the original speed. Special "Punch-In" functionality is accomplished so that the user can play during captured data is being played. The ***Hold*** button pauses the playback. To erase previous session and re-arm the recorder, hold ***Capture*** and press ***Reset*** buttons. The ***Pattern*** button has special functionality in this mode, it turns on/off the knobs playback allowing the user to additionally tweak them.
hint - by holding ***Capture*** and pressing ***Reset*** during recording, the system erases the buffer and sets the record ready state.

Pattern - Defines the global rhythmic pattern applicable to all sequencing/arpeggiation modes.

RESET - Toggles the *remote enable* status. The whole state of the 220e can be stored and recalled by a little aid of the 200e series preset manager.

IMPORTANT - All sequencing/arpeggiation modes need to be driven by external timing pulse applied to the ***event advance*** input.

Calibration Routine

The new digital nature of the 220e allows to calibrate each key individually to compensate sensitivity intolerance. To enter the calibration mode hold **Pattern+Reset** during system power-up. Once those two buttons released, **Random** led will show the lowest sensitivity extreme for the chosen key. Set all key related pots counter-clock-wise, the left scaler pot to min and the right one to max. Touch the key with least possible force and confirm the value by pressing the **Hold** button, press **Shuttle** and touch the key with the maximum desired finger area, then press the **Hold** to memorize it. The curve linearity can be set by the corresponding pot, **Reset** clears the current key calibration settings. Switch to the next key by pressing **->** and repeat the procedure. The blue led line acts as a level bar for comfortable monitoring. When the last touch key is calibrated, press **->** to restart the 220e.

Keen Association - Moscow