



Welcome, and thank you for purchasing the Pulsar-23.

The purpose of this short manual is to help experienced synth users who want to start work with the Pulsar-23 quick-

er, without reading of the main manual, to learn key hidden and non-common functions that are hard to find and understand without an explanation. If you have decided to use the QuickStart, it's supposed that the rest of the controls and connectors are quite common and clear for you or you can discover its func-

tions during simple experiments. Anyway, it's highly recommended to read the main manual sooner or later as the Pulsar is a complex machine with many unique possibilities.



QUICK  
START

## LOOPER / RECORDER

- 1 **ADD** — record notes into the looper.
- 2 **DEL** — erase notes in the looper.

### In Record Mode:

- ADD — works in overdub mode
- If holding down DEL and pressing ADD, then erase and record are activated at the same time so you have a kind of punch-in mode.

### In Play Mode:

- ADD — Play over a pre-recorded sequence or trigger sounds without altering the recording.
- DEL — Mute notes without altering the recording.

### REC.CONT Module (Recorder Control)

- 3 **BANK** — is a multi-functional button
- 4 **L** — is a multi-functional button
- 5 **M** — is a multi-functional button

- Press-Holding the BANK button while pressing ADD or DEL of one from four drum channels will select 1 of 4 available banks of loops. Each bank contains 4 independent loops (one for each drum channel).
- Press-Holding the BANK button and pressing ADD + DEL of one from four drum channels will select a new bank of loops while copying content from the previous bank to the selected one "on the fly" ie during a real-time playing. Pressing these buttons combination once again will continue this copying from the current point. It allows creating cool punch-in recordings from one bank to another. Copying will be performed only on

those channels where the recording mode is turned on.

- Pressing the BANK button + L (STOP) stops a looper from playing.
- If press-holding the BANK button + M (START) and pressing ADD or DEL on one of the channels, the looper will begin playback from 1 of 8 designated sections. Each channel looper is divided into 8 equal partitions eg: sections. The 8 ADD and DEL buttons on 4 channels represent the 8 sections/partitions linked to it.
- If press-holding BANK+L+M and pressing ADD or DEL on one of the channels will perform quantisation of this channels by 16".

### In Record Mode:

L and M control velocities of recorded notes.

- L — Low Velocity
- M — Medium Velocity
- L+M — High Velocity

### In-Play Mode:

L and M change the velocity of previously recorded notes.

### 6 **LRST** (Looper ReStarT)

Applying positive voltage to this pin will trigger a restart of a looper. A common purpose for this pin is to sync-lock the looper to the clock-divider. In a typical scenario, LSRT should be connected to the 0.25 value pin of the clock-divider. Connection of LSRT to a smaller divider value (0.5 1 2 4 ,etc) shortens a loopers length. This connection, synchronization should be used if the clock rate is to be

modulated. It should also be used when a hard lock between the looper and the clock divider is required in any modes of operation.

RST in section CLOCK — resets the clock-divider and looper. Its function is to align the divider and loopers. Triggering this function prior to recording so that loopers synchronize to the clock-divider is recommended.

### 7 **CLK** pin

Inputs to a loopers individual clock source. A pulsing signal, applied to these pins will cause replacement of the hard-wired clock with that individual one. The full length of a looper is comprised of 128 clock impulses. The CLK pin is sensitive and responsive to touch! Applying a voltage through the body to these pins will cause displacement of the loop. It can be used as a loop altering effect. If happy accidents are not desired, it can be covered with pieces of the insulating tube.

## MIDI

### LRN (Learn)

Buttons allow learning of incoming midi signals and midi channels from the midi DIN input on the back panel. By pressing the learn button next to a knob or a channel then turning a knob/key on your midi controller assigns Pulsar-23's drum channels/knobs/functions for external midi control. Drum channels and the internal MIDI to CV converter automatically identifies if a key or a knob was activated. It makes a unique possibility to control drum channels by continuous controllers that give flexible control over the channel's attack, sustain, decay by a

simple drawing of the controller behavior in a DAW.

This feature provides access for a DAW, external sequencer or midi controllers to perform detailed and complex automation over Pulsar.

### MIDI CV

4-channel MIDI to CV converter.

If MIDI channel assigned to the bass sound generator and MIDI channel assigned to the MIDI to CV converter number 1 are equal, the output 1 (marked KTR —key tracking) will generate key-tracking signal according to input bass notes. To make this assignment while holding LRN button of the 1st MIDI to CV output press any key on the keyboard assigned to the bass channel.

For synchronization of the clock-divider and the looper to an external MIDI signal, set INT MIDI switch of CLOCK section to MIDI position.

### SHAOS

SHAOS is a unique and flexible pseudo-random generator based on shift registers.

**63-16-217** — pseudo-random sequence length selector. The length can be 63, 16 or 217 steps.

**CLK** — Clock input to synchronize the pseudo-random generator to an external source e.g. the clock-divider.

**S/H** — Input for the clock to sample and hold. On the outputs marked "S/H" will output synchronized signals with the rising edges of the incoming CV signal. Outputs DIR works independently from

S/H with SHAOS internal clock. If there's no incoming signal to S/H it then operates from SHAOS internal clock.

**1,2,3 BIT**—resolution in bits for SHAOS outputs. A 1-bit output has 2 levels of the output signal, 2 bit—4 levels, 3 bit—8 levels.

**DATA**—Input allowing the recording of 16 step cycles into SHAOS. For this to function "16" should be selected from the 63-16-217 switch selector.

### FX

2-channel independent FX processors comprising of reverb and delay.

**DLY REV (FX)**—switch determines which effect is assigned to the FX sub-mix bus. The FX knob within a sound channel determines the amount sent to either of the 2 selected FX channels.

**BPF DBL PCH** (bandpass filter, double, pitch)—switch for selecting effects:

**BPF** 1st ch—delay with a tweak-able band-pass filter in feedback. 2nd ch—Reverb

**DBL** 1st ch—double delay. 2nd ch—Reverb

**PCH** 1st ch—delay with a tweak-able pitch shifter in feedback. 2nd ch—Reverb with a pitch shifter in feedback.

**MAD!** Stereo—with BPF and PCH effects, MAD! brings out crazy behavior of the FX processor. With the DBL position of the switch, engages the stereo operation of the FX processor. The stereo signal is sent to DLY output (L) and REV output (R) pins of the FX section.

**TIP** For continuous mad or stereo operation connect this pin with the pin "+10v" that is a constant +10 volts output.

**DLY REV**—independent inputs and outputs for the 2 FX processors.

**CLK MOD**—Modulation input for the DSP clock of the FX processors.

### LFO

**SYNC**—Sync input. The rising edge of an incoming signal will restart the LFO. SYNC allows the LFO to sync to the clock divider or one of the drum channels. To trigger the LFO from a channel use the TRIG pin.

## ADDITIONAL MODULES AND FUNCTIONS

**8 4 Attenuators** that can be used to control audio or CV signals.

**9 8 Euro-rack format 3.5mm input jacks to 8 pins adapters.**

**10 Individual diode** for live circuit bending.

**11 Individual capacitors** with a value of 0.1uF and 10uF for live circuit bending.

**12 Impulse/Signal Transformer.** Converts an incoming sustained signal to a fast decaying shaped impulse suitable for triggering of a drum sound. The main purpose of it is to create straight drum lines using clock divider as a rhythm source. For making it connect the appropriate value from the clock divider via the transformer to the trigger input of the desired drum channel.

### 13 MIX IN

An additional external audio input that sums into Pulsar's internal audio mixer.

**TIP** To create a metronome, chose the necessary value from the clock divider and connect it via one of the attenuators **8** to MIX IN. For the fast making of the metronome, you can connect the clock divider output and MIX IN by fingers using body conductivity.

**VCA**—Two controllable VCA's through CV amplifiers. Can be used with audio as well as CV signals.

### 14 Inverter

Works with CV and Audio signals.

**TIP** Here it's possible to create a Side-Chain Effect. Eg: Connect ENV pin from the BD ch to the inverter IN. The OUT of the inverter connects to the CV pin of the VCA. Connect a sound source to the VCA input and the VCA output to the MIX IN.

### 15 CV controlled Inverter.

Works only with CV signals as it has a binary output (0 and 10v).

Can be used to invert triggering signals and flip a beat. Eg: replace a quarter note hi-hat pattern into an eighth note pattern. This can be done by inserting the inverter into the signal of the clock-divider (a quarter note pulse) that is connected to TRIG pin of the HHT channel. Applying of a voltage higher than +5v to CV pin of the inverter will cause altering of HHT pattern from 4th into 8th.

**16 On-Off switches controlled by CV signals.** Can work with audio and CV signals.

**17 (CV)** Dynamic touch sensors generating CV signals from 0 to 10v. Put a finger between the sensors. Depending on the pressure and humidity of the skin, a 0–10-volt signal will appear at the CV output.

## ABBREVIATIONS

**+10 v**—DC 10 volt

**AMT**—amount

**ATT**—attack

**BD**—bass drum

**CLK**—clock

**DEL**—delete

**DIR**—direct

**DLY**—delay

**ENV**—envelope

**FB**—feedback

**FR**—frequency

**FREQ**—frequency

**GND**—ground

**H**—high

**HHT**—hi-hat

**L**—low

**LRST**—looper restart

**LRN**—learn

**M**—middle

**MOD**—modulation

**OMG!**—oh my God!

**PRC**—percussion

**PWR**—power

**Q**—resonance

**REC**—record

**REC.CONT**—recorder control

**REL**—release

**REV**—reverb

**RST**—reset

**S/H**—sample and hold

**SD**—snare drum

**SYNC**—synchronization

**TRIG**—triggering

**VOL**—volume

**WTF?**—self explanatory;