



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 of the 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 this button 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 the looper.
- 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 (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 sixteenth notes.

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 the looper. A common purpose for this pin is to sync-lock the looper to the clock-divider. In a typical scenario, LRST should be connected to the 0.25 value pin of the clock-divider. Connection of LRST to a smaller divider value (0.5 1 2 4, etc) shortens the length of a loop. 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 insulating tube.

MIDI

LRN (Learn)

Buttons allow learning of incoming MIDI signals and MIDI channels from the MIDI DIN input on the back panel. Pressing the learn button next to a knob or a channel and 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 identify if a key or a knob has been activated. This creates 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 the MIDI channel assigned to the bass sound generator and the MIDI channel assigned to the MIDI to CV converter number 1 are identical, the output 1 (marked KTR — key tracking) will generate key-tracking signal according to input bass notes. To make this assignment press any key on the MIDI keyboard assigned to the bass channel while holding the LRN button of the first MIDI-to-CV output.

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" signals synchronized with the rising edges of the incoming signals will be output. 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 tweakable bandpass filter in feedback. 2nd ch—Reverb

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

PCH 1st ch—delay with a tweakable 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. 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 to 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. Its main purpose is to create straight drum lines using the clock divider as a rhythm source. For doing this, connect the appropriate value from the clock divider to the trigger input of the desired drum channel via the transformer.

13 MIX IN

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

TIP To create a metronome, choose the necessary value from the clock divider and connect it to MIX IN via one of the attenuators **8**. For quickly creating a temporary 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. E.g.: Connect ENV pin from the BD ch to the inverter IN. And connect the OUT of the inverter 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 with 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 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;