POCZDAM

THE LEIBNIZ BINARY SUBSYSTEM

LEIBNIZ DEVICE
KOMUTATOR

Model of 1989

OPERATOR'S MANUAL *rev. 1989/X3/1.1*

SALUT

Thank you for purchasing this Xaoc Devices product. Poczdam ['pɔdʒdam] is a binary data routing solution for the Xaoc Leibniz Subsystem. It facilitates manual and remote switching between two Leibniz data sources, modifying individual bits of the data stream, and re-clocking the data with its onboard voltage–controlled wideband oscillator or any external clock signal. Poczdam is particularly useful within complex Leibniz setups where the user needs to reconfigure the data flow between multiple modules. However, it can also be employed in small creative patches, e.g., for waveform splicing, disrupting rhythmic loops, or generating digital chaos.

To better understand the device and avoid common pitfalls, we strongly advise you to read through the entire manual before use.

INSTALLATION

The module requires 10hp worth of free space in the Eurorack cabinet. Always turn the power off before plugging the module into the bus board using the supplied 16-pin to 16-pin ribbon cable, paying close attention to power cable pinout and orientation. The red stripe indicates the negative rail and should match the dot or **–12V** *mark on the bus board as well as the unit. Poczdam is internally secured against reversed power connection; however, rotating the whole 16-pin header* **MAY CAUSE SERIOUS DAMAGE** *to other components of your system because it will short circuit the +12V and +5V power lines. Always pay close attention to the proper orientation of your ribbon cable on both sides!*

Besides power, you need to connect Poczdam to other components of your Leibniz subsystem. Poczdam comes with three ribbon data cables with 10-pin plugs on both ends. Before installing the data cables, we advise you to read the entire manual and carefully plan your Leibniz setup. Pay attention to the proper orientation of the red stripe with pin #1 indicated by a dot or an arrow on each module. Remember that proper data transmission requires connecting inputs to outputs, just like the analog signals in your modular system.

WARNING: MAKE SURE NOT TO PLUG THE EURORACK POWER INTO ANY DATA HEADERS. *Doing so will destroy your Poczdam immediately and may jeopardize other Leibniz modules connected to it!*

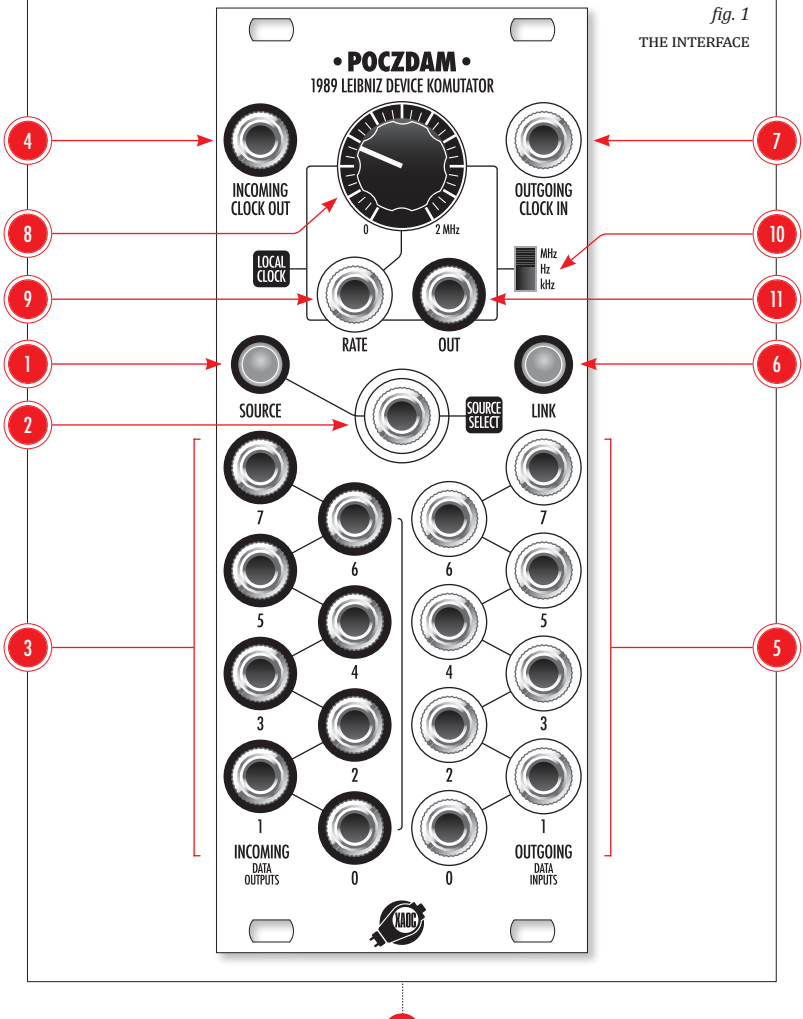
The module should be fastened by mounting the supplied screws before powering up.

MODULE OVERVIEW

The main feature of Poczdam is switching between two data sources plugged into its two Leibniz **IN** *ports at the back. Switching may be done manually by pressing the illuminated button labeled* **SOURCE** ❶ *in the upper section of the front panel (fig. 1) or with a trigger/gate signal plugged into the* **SOURCE SELECT** *input* ❷*. The source data is selected together with its associated clock and delivered to the Leibniz* **OUT1** *header at the back.*

Besides **OUT1***, the data from the selected source is also available in the bank of eight binary* **INCOMING DATA OUTPUTS** *jacks* ❸ *on the front panel. Furthermore, apart from*

fig. 1
THE INTERFACE



the data bits, the clock of the selected source is also available in the jack labeled **INCOMING CLOCK OUT** ❹.

Next to the bit outputs is a bank of eight bit **OUTGOING DATA INPUTS** ❺. *Signals connected there are converted to Leibniz data and delivered to the* **OUT 2** *header at the back. All individual* **OUTGOING DATA INPUTS** *may be optionally normalled to the signals from corresponding* **INCOMING DATA OUTPUTS**. *This normalization is activated with the* **LINK** *button* ❻.

The data sent to the **OUT 2** *header is by default clocked with the same clock as* **OUT1**; *however, you may replace the clock by plugging a signal into the* **OUTGOING CLOCK INPUT** ❼ *on the front panel. One particularly suitable option is to use the onboard local clock generator. Its frequency is controlled with a* **RATE** *knob* ❽, *and a control voltage plugged into the* **RATE** *input* ❾. *The clock operates in three ranges switchable with a miniature slider* ❿: *800–15000Hz (middle position marked* **Hz**), *7kHz–120kHz (lower position marked* **kHz**), *0.1 MHz–2MHz (upper position marked* **MHz**), *and is available at the* **OUT** *jack* ⓫.

THE PRINCIPLE OF OPERATION

The block diagram of Poczdam is shown in fig. 2. The heart of the module is a two-state source selector (multiplexer) that switches between two Leibniz data sources (together with their associated clock) plugged into the **IN1** *and* **IN2** *headers. The selection is controlled by a 2-state flipflop that may be toggled manually or via an external trigger/gate signal. The selected data with its clock is directly fed to the Leibniz* **OUT1** *header at the back. It is also delivered as 5V gate signals to the bit output jacks on the front panel.*

The signals from the front panel bit inputs are fed to the Leibniz **OUT2** *header at the back. The default state of each unpatched input is low (0V). However, activating the* **LINK** *feature creates a normalled connection: each input bit receives a copy of the signal from the corresponding bit out as its default state. It can still be overridden by patching anything into it.*

The clock for the **OUT2** *header may also be replaced with anything plugged into the dedicated* **OUTGOING CLOCK IN** *jack. Regardless of the state of the* **LINK** *button, it is always normalled to the clock of the selected data source.*

The clock generator is a separate part of the module. The frequency is controlled by CV and a knob that acts as a manual offset. **NOTE:** *you need to physically patch the clock* **OUT** *jack to the* **OUTGOING CLOCK IN** *jack to use it as your new clock alongside the outgoing data via the Leibniz* **OUT2** *header at the back.*

PATCH IDEAS

One obvious use of Poczdam is switching data sources for Jena. Plug Drezno **OUT** *to* **IN1** *and Erfurt* **OUT** *to* **IN2** *in Poczdam. Plug* **OUT1** *from Poczdam to* **IN** *of Jena, and* **OUT** *of Jena back to Drezno. Doing so allows you to conveniently switch between using Jena as a waveshaper for audio and CV (coming from Drezno) and a stable rhythm generator or a complex LFO (with data from Erfurt).*

Erfurt with Poczdam plugged into its input allows one to select the source of the phase increment. For example, plug Drezno to **IN1** *of Poczdam and Lipsk or Gera to* **IN2**. *This setup can easily go into crazy territory if you use one of the bit outputs of Erfurt for switching sources in Poczdam.*

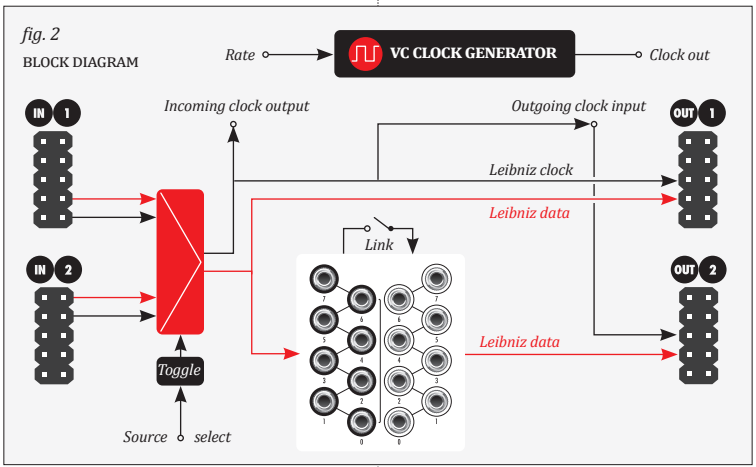
Use Poczdam to create a temporary loop. For example, plug Erfurt into the Poczdam **IN1** *and the Poczdam* **OUT2** *into the input of Jena. Create a feedback loop from the output of Jena into* **IN2** *in Poczdam. Doing so allows you to easily switch between normal rhythm playback and something complex and chaotic. Experiment with the front panel jacks to make even more feedback connections.*

Both Ostankino II (with Moskwa II) and Erfurt may act as sources of regular Leibniz data sequences but with a radically different character. They may be used for generating interesting looped CV patterns when converted to analog with the DAC section of Drezno. Quickly switching between these two is a great way to introduce some variety to otherwise repetitive results. Plug Ostankino's output into Poczdam's **IN1** *and Erfurt's output into Poczdam's* **IN2**. *Plug Poczdam's* **OUT1** *into the input of Drezno. Plugging Poczdam's* **OUT2** *into Lipsk and then Lipsk back to Erfurt facilitates switching on complex data sequences with a press of the* **LINK** *button.*

ACCESSORY

Our high quality Coal Mine black panels are available for all Xaoc Devices modules. Sold separately. Ask your favorite retailer. •

fig. 2
BLOCK DIAGRAM



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MADE IN THE EUROPEAN UNION

MAIN FEATURES

Component of the Leibniz Binary Subsystem

Routing Leibniz data

Reclocking Leibniz data

Additional CV clock generator (up to 2MHz)

TECHNICAL DETAILS

Eurorack synth compatible

10hp, 30mm deep

Current draw: +20mA/-10mA

Reverse power protection