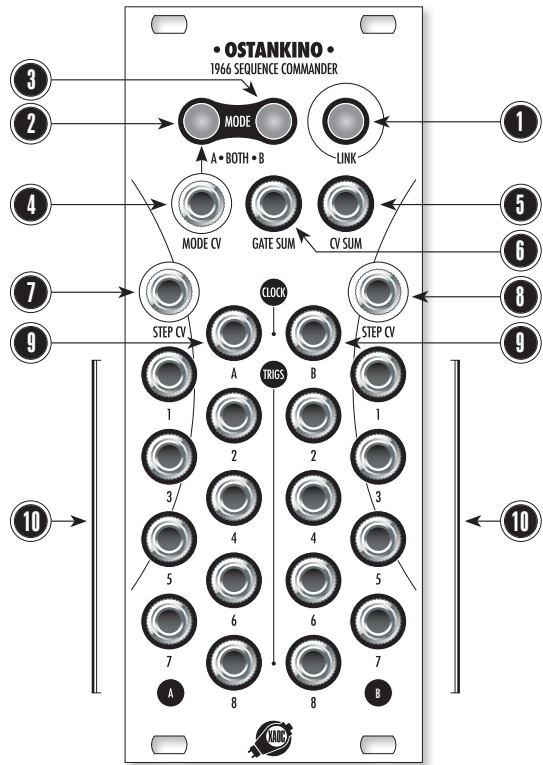
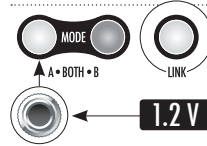


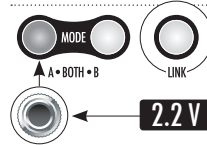
## THE MODULE EXPLAINED



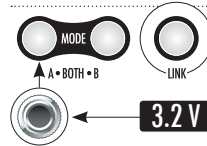
to play the (A) pattern



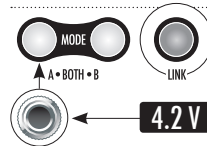
to play the (B) pattern



to play the 16 step seq.



to break patterns apart



## SALUT!

Thank you for purchasing yet another Xaoc Devices product. As you probably know, the Ostakino expander module is designed to work with a dual Moskwa setup. **Note:** Using one sequencer unit with the expander is possible but will result in less than half the functions being available.

The Ostankino adds a huge amount of functionality to the Moskwa sequencer and may seem confusing at first glance. But it was designed to be easy and intuitive to use and, most of all, fun! The following manual explains how.

### 1. SEQUENCE MODES

Both Moskwa units chained up to Ostankino can operate independently or linked.

To sync sequencers, press the LINK button 1, so it lights up. The clock RATE, type of sequence PLAY MODE (standard, random, pendulum) is adjustable on the master unit Moskwa (A). The only working controls on the slave unit Moskwa (B) are POLARITY switch, SLEW, STEP switches and RESET knob. CV controls are not active.

While linked, sequencers can generate either their own patterns independently or merge them into one 16-step sequence.

CVs and gates are summed, and available from the cv SUM 6 and GATE SUM 5 outputs

on Ostankino's panel.

**Note:** CV and gate outputs on each Moskwa units are not active while in linked mode.

To dial the desired performance mode manually, press the MODE A button 2 to play the pattern set on the (A) unit, and MODE B button 3 for the (B) unit. Press both these buttons for 16-step long sequence.

To dial the desired mode via CV, patch the control voltage into the MODE cv input 4.

It's 1.2V for the pattern (A); 2.2V for the pattern (B); 3.2V for the 16-step sequence; 4.2V to break the patterns apart.

When sequencers are not linked, MODE A and MODE B buttons 2 3 can be used to switch the corresponding unit on/off (pause).

### 2. INDIVIDUAL CLOCK OUTPUTS

These sockets 9, obviously, spit out the internal Moskwas' clock RATE so you can sync other modules to them. **Note:** if there's already an external clock fed into Moskwa, the corresponding clock output on the Ostankino will just simply transmit it unaffected.

### 3. INDIVIDUAL TRIGGER & GATE OUTPUTS

There is a set of 8 trigger/gate output sockets 10 available for each sequencer respectively. You can use these to program rhythmic events

(i.e. patching a Bytom module) or just anything relevant to the sequence. These outputs can work in two modes:

**Mode 1:** To transmit the gate (if the step is turned on) for each step in the pattern individually, set on the corresponding Moskwa unit.

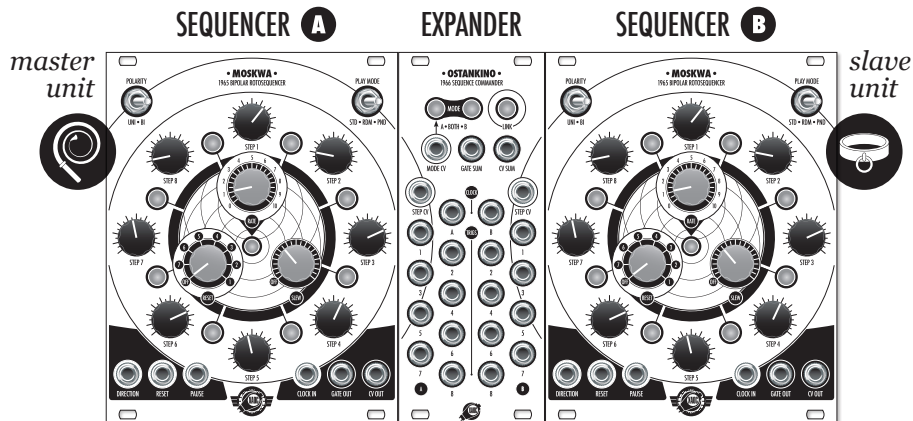
**Mode 2:** To generate trigger impulse for each step individually, no matter the gate settings on the corresponding Moskwa unit.

In order to dial the desired mode, hold the MODE A 2 button (for the A unit) or MODE B 3 button (for B unit) for 2 seconds. After releasing it, the button will change its illumination – brighter when the gate is being transmitted from Moskwa and dimmed when in trigger mode.

**Note:** Gate length setting is global for each sequencer. If the trigger (1/8) is set on Moskwa, Ostankino will generate a trigger too, even if Mode 1. has been set already.

### 4. STEP CV INPUTS

The last but not the least, useful and totally fun feature is voltage control (0-5V) for setting the desired steps in the pattern via STEP CV inputs 7 8. Therefore, the sequence can be started at any of its 8 or 16 steps. **Note:** the voltage is quantized to the actual clock rate. In linked mode only STEP CV (A) 7 is active – taking advantage on all 16-step pattern.





## PRODUCT FEATURES

- voltage and manual control over 2 Moskva sequencer units
- synced dual 8-step patterns or merged 16-step sequences
- individual clock outputs for each sequencer unit
- individual gate/trigger outputs for every step on each sequencer unit
- voltage controlled step dialing
- summed CV and gate outputs

## TECHNICAL DETAILS

- eurorack standard synthesizer module, fully Doepfer compatible
- 10 hp wide
- requires 2 Moskva modules
- no direct power connection needed

**WORKING CLASS  
ELECTRONICS**



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BEFORE ATTEMPTING TO SWAP THE CHIPS OR CONNECTING YOUR SEQUENCER MODULES TO THE EXPANDER, PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY! WRONG CABLE OR CHIP ORIENTATION WILL INEVITABLY DAMAGE THE MODULES! THIS IS DAMAGE WHICH IS NOT COVERED BY WARRANTY SO PLEASE USE DUE CAUTION WHEN INSTALLING!

# CAUTION!



## CHIP REPLACEMENT

Ostankino requires Moskva microcontroller ICs to be replaced. The new firmware revision that takes advantage of the expander functionality, improves the performance and adds some new features.

Turn your system off, then unscrew and unplug the modules. Put them on the table, knobs down. Now, remove the old chip. Pry it up gently using a toothpick or tweezers, as shown on [Fig.1]. Then, put

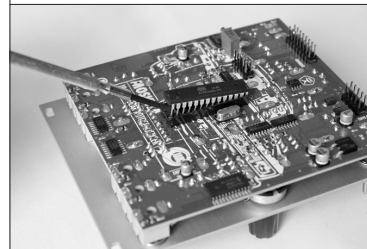
the new chip in place. Observe the orientation carefully, the notch points down! Then, gently, push the chip until it sits safely in the socket. Repeat the operation for the remaining Moskva unit.

## CONNECTING THE CABLES

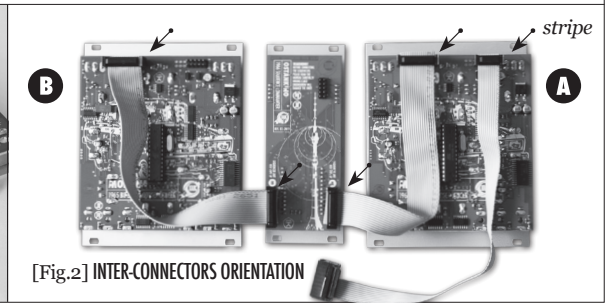
Looking at the back side of modules, attach the 16-pin inter-connectors as shown on [Fig.2]. The red stripe points to the right on the Moskva (EXPANDER header, remove

the jumper first), and points up on the Ostankino (A and B header, should arrive attached already).

Clear 50hp in your cabinet and place the modules in it. Only Moskva A requires a power cable now (you can simply remove a power cable from second unit). The expander module and second Moskva will draw their power from the first unit. Finally, check if the orientation of the power cable is correct, and that's it, you're good to go!



[Fig.1] REPLACING THE CHIP



[Fig.2] INTER-CONNECTORS ORIENTATION