JOYTRACKER – MSX PSG sequencer
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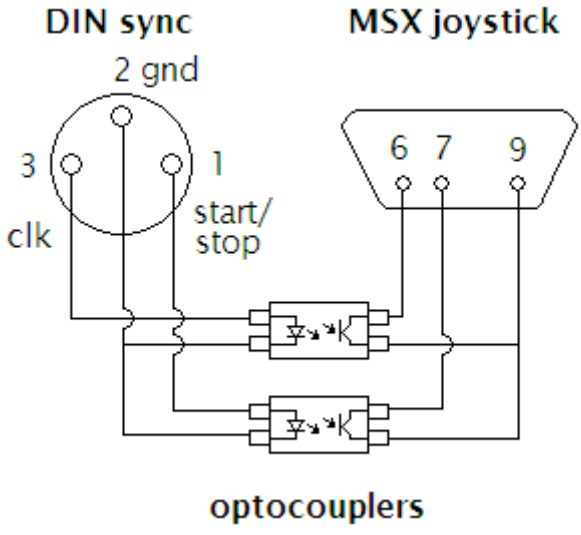
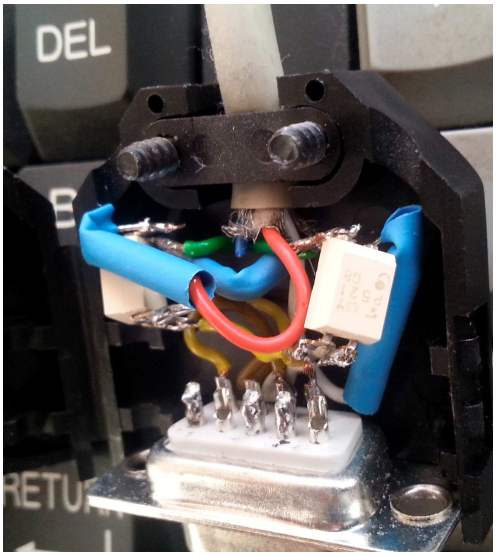
Features:
-external sync via joystick port (see pic below)
-instrument/ornament programming
-polyrhythmic
-real time playing mode (transposing with keyboard)
-very good manual





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INTRODUCTION

The aim of JoyTracker is to provide an advanced PSG sequencer for MSX machines with at least 64k ram. The most notable feature is synchronization to external devices using DIN sync, through the joystick port. Hence the name "JoyTracker". Of course the program will also run stand-alone.

If you have a DIN sync source, you can wire your clock and run signals through 2 optocouplers to trg1 and trg2 of joystick port 1. Pinout: 6=clock, 7=run/stop, 9=gnd (see pic on page 1). Please note that these ports are quite sensitive to external voltages so be careful. I take no responsibility if you break anything. I'm using a Doepfer MSY2 to get a DIN sync signal from a MIDI clock and 2 P521 optocouplers.

The program is of course still under construction. It has been written using the WBASS2 assembler by Wilbert Berendsen (thanks!:)

JoyTracker has been designed to work within the BASIC environment. The help, load and save functions are implemented in BASIC. When you exit the program, a BSAVE command is printed. Just edit the filename manually and press Return to save your patterns.

GENERAL INFO

The JoyTracker Sequencer runs at 4 levels: track (trk), sequence (seq), pattern (pat) and instrument (ins).

All values except note/octave data are entered in Hex.

All columns have 16 pages, which can be accessed using the cursor keys. + and – can be used as PgUp/PgDn. The page number is displayed at the top of each column.

There are 3 main playing modes:
0 – single pattern (SHIFT+TAB)
1 – track mode (continuous) (TAB)
2 – track mode (resync, only useful with external sync) (TAB)

When the external clock is stopped and restarted:

In mode 0, it restarts at the current position.
In mode 1 it restarts at position 00.
In mode 2, it restarts at the next position.

You can toggle between keyboard modes edit/play using key F4. In play mode, keys ZSXDC… can be used to transpose the entire sequence.

F5 will start/stop the sequencer in standalone mode. When using external sync, this will be controlled remotely.

TRACK COLUMN [t]
----
nops: note | command (0-E -> note/trigger; F -> command)
**   octave | command**
**   page | value**
**   start | value**
The Tracks are programmed in the leftmost column. Here the main track structure is programmed.

commands:
F0xy   Jump directly to page x, row y(*)
F1xy   Set repeat counter for next sequence
F2xy   Set speed (clock events per tick)
F3xy   Set speed (ticks per pattern row)
F4xy   Set sequence length (x*16+y)
F5xy   Set loop repeat counter

(*) When the loop repeat counter is reached, the jump command will be skipped.

SEQUENCE COLUMN [s]
----
cppp: command / pat1, pat2, pat3

The second column define the sequences. There are 4 commands:
**   0ppp->pattern number/trigger**
**   1ppp->transpose**
**   2ppp->speed (ticks per row)**
**   3ppp->offset**
Higher values than 3 are ignored. Use commands 1, 2 and 3 before using command 0. The sequencer will keep reading commands (downwards) until a trigger (0ppp) is encountered or the end of the page has been reached.

PATTERN COLUMNS [p]
----
nois: note/octave/instrument page/start_offset

White keys are denoted C/D/E/F/G/A/B, black keys d/e/g/a/b. A note trigger example: ‘e334’ will trigger row 4 of instrument page 3, transposed to note value D#3.

Entering a dot (.) in the note/octave columns will delete the note. Entering a zero in the octave column in an empty row will add a JP (jump) command. For example JPxy will jump to page x, row y. You can use ins/del to manipulate the data.

INSTRUMENT COLUMN [i]
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novd: note/octave/volume/detune
cmns: clock/mask/noise period/env shape
envp: envelope period (16 bits)

Noise period, envelope shape and envelope period are simply programmed according to PSG registers 6, 11, 12, 13. For more information on this, please refer to the known literature.

The ‘clock’ nibble sets the number of clock cycles for the current row (0 = infinite). The ‘mask’ nibble consists of tone/noise/envelope bits and the noise period most significant bit.

KEYS

ESC	**Silent/reset**
F1/CTRL+STOP	**Exit**
F2	**Save**
F3	**Load**
F4	**Edit/Play**
F5	**Run/Stop**
Space	**Restart sequence**
Enter	**Jump (in Track column)**
+,-	**Page up/down**
Shift+1,2,3	**Mute/unmute channel**
Shift+F1	**Int/Ext PSG (megaflashrom)**
TAB	**Mode 1/2 (resync off/on)**
Shift+TAB	**Mode 0 (single pattern)**
[,]	**Speed up/down**
CTRL+C,V,X	**Copy/Paste/Clear (not properly implemented)**

Note colums:

0 to 9	**Change octave**
ZSXDCVGBHNJM	**Enter note**
. (dot)	**Delete note**

Data columns:

0-9, A-F	**Enter hex value**

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EnJoy!
-Kanarie
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