KOMPAS Manual

Kompas is a three-coordinate probabilistic pattern generator. Each coordinate has a unique travelling pace and a dedicated trigger output. The amount of probability can be adjusted manually or by external voltages. Once a coordinate has been adjusted, a new pattern is generated and looped until the next change of direction. Unlike common probability operation, instead of filtering a pre-determined sequence, kompas uses probability to generate a new one.

FEATURES

global clock and reset input
3 x 32 step pattern generators with different travelling algorithms
3 CV inputs for coordinate modulation
3 trigger outputs
2/5/10ms selectable trigger length (via boot settings)
DIY and hacker friendly Arduino programmable hardware
open-source schematics and code available also as DIY soldering and coding workshop

TECHNICAL DETAILS

5 HP
PTC fuse and diode protected 10-pin power connector
35mm deep (skiff friendly)
5ms default trigger length
5V trigger outputs

0 5V protected CV inputs
60Hz maximum clock rate (3600 BPM :0)
6-pin FTDi connector;
power consumption 12V: 30mA; -12V:
0mA; 5V 0mA

Longitude is the safest route.
Latitude is the most unpredictable
route.
Altitude is always related to the other
two coordinates.

Controls
(1) Clock input
Clock input is global for all coordi-
nates, it moves the pointer to the next
step and updates the current coordinate
position.

(2) Reset input
Reset input is global for all coordi-
nates and moves (brings) the navigation
back to the first step.

(3) Coordinate knobs
Longitude, Altitude, Latitude set the
amount of probability and generate a
new pattern. On full clockwise position
all the steps are active, full count-
er-clockwise none of the steps is ac-
tive. Note: each coordinate has a dif-
ferent travelling algorithm, every time
the coordinate changes, the alert LED
on the left side will light up.
(4) CV inputs

A dedicated CV input can be used to
modulate the degree of the coordinate,
whose knob position will act as an off-
set. CV inputs operate from 0 to 5 pos-
itive voltages and the internal pro-
tection circuit prevents damage from
bigger and negative signals.

(5) Trigger outputs
Each coordinate has a separate output
which delivers a trigger signal when
the current step is active. Every time
a trigger signal occurs, the led on
the right side of each coordinate will
light on.

Installation
(A) LED jumpers (default operation)
Three jumpers must be installed in the
expander header following the orienta-
tion printed on the board. These jump-
ers will enable the left-most coordi-
nate LEDs.

The remaining pins (5v, GND, PD7, PBO)
are meant for factory configuration or
hacking purpose and by default should
be left unconnected.

(!) Power header
Before connecting the module to
the power, make sure your system is
switched off and double check the po-
larity of the ribbon cable. The red
stripe (-12V) must match the sign on
both module header and system bus

board. In case of mistake there's a po-
larity protection which will prevent
damage of the module.

(B) Boot Settings
Because certain modules might work bet-
ter with shorter or longer trigger sig-
nals, there is a boot menu which lets
you choose three different length set-
tings: 2, 5 or 10 ms (the factory pre-
set is 5ms).

In order to access the boot menu set-
tings you must follow this order of
steps:
(I) - switch off (turn off) your system;
(II) - connect the power ribbon to the
module;
(III) - install the extra jumper (includ-
ed in the kit) in between pins PB0 and
GND on the expander header;
(IV) - power on your system and tweak one
of the knobs:
    * Longitude   2ms
    * Altitude   5ms
    * Latitude   10ms
    the rightmost LED will light on ac-
cording to the trigger length
you choose;
(V) - switch off your system;
(VI) - disconnect the jumper;

Hacking zone
Behind Kompas there is an Arduino-com-
patible hardware (ATMEGA328P chip)
which can be re-programmed and hacked

for different eurorack application.

(C) FTDi header
Connector for re-programming the AT-
MEGA328P chip.
(D) Expander header
Allows the access to ATMEGA328P pins
which are not used by default opera-
tion.
(E) MIDI soldering pad
Connection point to the RX pin of the
ATMEGA328P - suitable for potential
MIDI implementation.