The Clavette:
A Generalized Microtonal MIDI Keyboard Controller

Harold Fortuin
Institute of Sonology
6001 West 84th St., Apt.219
Bloomington, MN 55438-1188 USA
Tel: 1-612-941-7139/E-Mail: hfortuin@delphi.com

ABSTRACT: The Clavette, designed by Harold Fortuin, was built in 1994 thanks to support from the
Institute of Sonology and STEIM in the Netherlands. It was developed to facilitate the creation and
performance of live microtonal electroacoustic music in a variety of temperaments.

The Clavette includes a membrane-covered 122-key keyboard, two three-dimensional foot pedals, and six
footswitches. Typically, the keys are mapped to MIDI note numbers; the pedals to continuous controllers;
and footswitches to program changes. Raw output is converted into MIDI data through the programmable
STEIM SensorLab, which transmits it to a programmable synthesizer for audio output.

The Clavette’s 122 keys are highlighted switches arranged in a hexagonal pattern in nine rows on a flat
board roughly 21 by 29 cm. The distance between adjacent key centers in any direction is 2 cm. A
transparent plastic envelope above the keys makes it easy to play two or three at once with one finger, and
also enables key glissandos in a variety of shapes and directions. Paper templates customized for each
tuning or key layout can be placed inside the envelope as a performance aid.

The right and left foot pedals typically control MIDI velocity or continuous controller data for the
corresponding half of the keyboard. The rotational axis can select which group of keys will receive the
velocity level determined by the up-down axis. The roll pedal motions are typically used to control
parameters such as vibrato, filter bandwidth, or glissando. The foot switches perform functions such as
selecting another synthesizer patch, tuning, or set of key velocity groupings.

The Clavette’s basic performance techniques will be demonstrated, with an emphasis on its extensions of
existing keyboard and pedal technique. It will be compared with other 20th Century microtonal keyboards
such as Söcor’s Scalatron and Fokker’s 31-tone organ. The present/inventor will perform several short
pieces and excerpts, both transcriptions and original compositions, in various equal and just temperaments.
These pieces will also present various mappings of foot pedal motion to MIDI continuous controller and
pitch bend data.