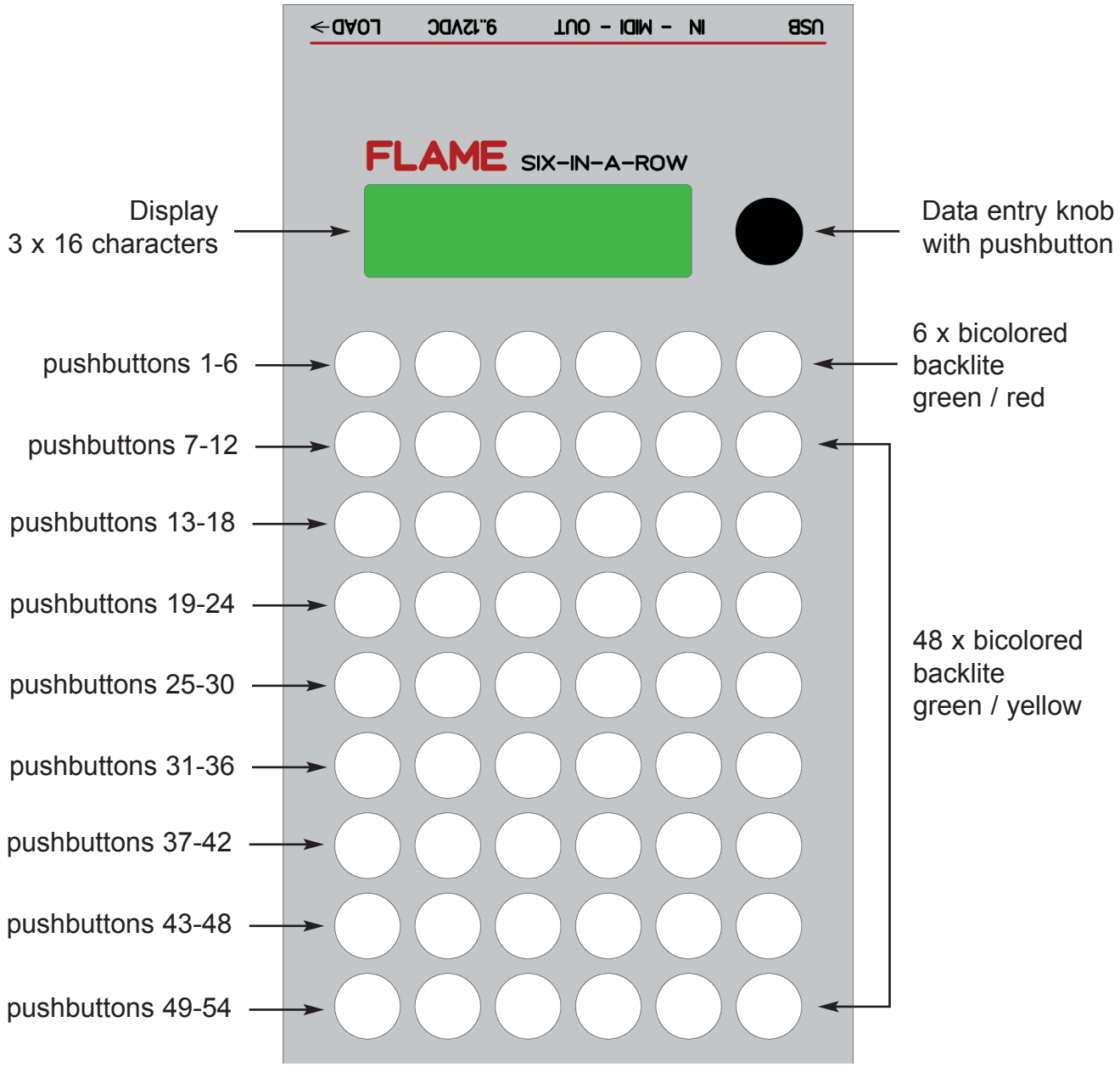
FLAME SIX-IN-A-ROW

MIDI PROTOCOL IMPLEMENTATION Version 1.02 / 10/2009

The remote mode offers the possibility to communicate with a PC/Mac via MIDI. A relatively simple protocol is implemented which is based on MIDI control change and on MIDI note on commands. This makes it possible to put the LEDs and the LCD display individually. The key buttons and the endless control dial send the according note / control change data. Up to 16 devices can be run at the same time using different MIDI channels. With the aid of MAX/MSP, PURE DATA, REAKTOR or with LOGIC environment you can programme your own applications.
On boot sequence can select the remote programm (it will be start on next time automaticly). Also select the MIDI channel (1-16, default = 1). The user selected channel will be automaticly stored.

Functions:
- all buttons and data entry knob sends note on and control change commands
- setting LEDs individual, clear LEDs individual, clear all LEDs, clear all yellow LEDs, clear all red LEDs, clear all green LEDs
- internal tempo generator, set internal tempo (off, 52-177), internal tick counter until 6 (16th), reset function of counter
- receive external MIDI clock (convert to control change)
- writeable LCD digits individual, clear LCD rows 1-3 individual, clear all LCD digits (list of LCD characters on next side)
- write 3 digit numeric value on selectable LCD position (range of value: 0-127)
- send automatically control change command after power on (example for initialization external software)

FRONT PANEL ELEMENTS



TRANSMIT DATA (MIDI channel = 1-16 selectable + memorized on boot sequence)

FUNCTION	MIDI COMMAND	VALUES / REMARKS
pushbuttons 1-54	NoteOn/Off numbers 36-89	velocity=127, key on=NoteOn
	&	velocity=0, key off=NoteOff (NoteOn velocity=0)
	control change numbers 36-89	value=127 > key on, value=0 > key off
data entry pushbutton	NoteOn/Off number 90	velocity=127, key on=NoteOn
	&	velocity=0, key off=NoteOff (NoteOn velocity=0)
	control change number 90	value=127 > key on, value=0 > key off
data entry turn left	control change number 104	value=65
data entry turn right	control change number 104	value=1
respond to external clock	control change number 105	value=0, converted received MIDI STOP value=1, converted received MIDI START value=2, converted received MIDI CONTINUE value=3, converted received MIDI CLOCK (ticks)* *please note receive data: RECEIVE EXTERNAL CLOCK
send internal clock	control change number 106	value=1..6 (loop: count up ticks up to 6, 6=16th)* *please note receive data: SET INTERNAL TEMPO
send init command	control change number 109	value=127, send it automatic one-time after power on

RECEIVE DATA (MIDI channel = 1-16 selectable + memorized on boot sequence)

FUNCTION	MIDI COMMAND	VALUES / REMARKS
set LEDs pushbuttons 1-54	control change number 1-54	value=0, green off value=1, green on value=126, yellow/red off (keys: 1-6 red, 7-54 yellow) value=127, yellow/red on (keys: 1-6 red, 7-54 yellow)
set LCD display digits 1..48	control change number 55-102	value=0-127, characters (see below for character table)* *row 1 digits 01-16 CCNR 55-70 *row 2 digits 17-32 CCNR 71-86 *row 3 digits 33-48 CCNR 87-102
clear all LEDs	control change number 107	value=0
clear all green LEDs	control change number 107	value=1
clear all yellow LEDs	control change number 107	value=2
clear all red LEDs	control change number 107	value=3
clear LCD row 1	control change number 107	value=4, cleared all characters in LCD row 1
clear LCD row 2	control change number 107	value=5, cleared all characters in LCD row 2
clear LCD row 3	control change number 107	value=6, cleared all characters in LCD row 2
clear LCD	control change number 107	value=7, cleared all characters in LCD
receive external clock	control change number 107	value=126, no receive external clock data (default) value=127, receive external clock data
set internal tempo	control change number 108	value=0, off (default) value=1, reset tempo (tick) counter > set 1 value=2-127, set internal Tempo=52-177 (default=120)
write 3 digit numeric value	control change number 110	value=0-127, write 3 digit value on last LCD position (setting with control change 103: SET LCD POSITION)
set LCD position	control change number 103	value=0, off > don't write 3 digit value LCD (default) value=1-46, set LCD position (value 47-127 = 46)

LIST OF LCD CHARACTERS