

FLAME

μ16MCC MIDI CC to CV



MANUAL

Version 1.00

Contents

1. Short description.....	3
2. Hardware / connections.....	3
2.1 Connection to the modular system (Doepfer bus)	3
2.2 Module overview	4
2.3 MIDI connections	5
3. Handling	6
3.1 Controller Interface CC to CV	6
3.2 LEARN function	7
3.3 Settings via SYSEX files	8
3.4 SYSEX data format	9
4. Appendix and technical informations	10
4.1 Technical details	
4.2 Warrenty	
4.3 Terms of production	
4.4 Disposal	
4.5 Support	
4.6 Acknowledgment	

1. Short description

The "μ16MCC" module is a compact MIDI interface, which converts received MIDI control change commands on 16 outputs into CV voltages between 0 and + 5V. The resolution of the data bytes is 7bit. The outputs each have a passive lowpass filter, which smoothes the output voltages.

Each of the outputs can be assigned a separate control change number between 0 and 127 on its own MIDI channel. The module is programmable via the LEARN function with a MIDI keyboard and MIDI controllers, or via SYSEX commands. Some SYSEX files with default settings already exist.

The module has two MIDI sockets (mini jacks in TRS-B standard) INPUT and THRU. The data received at MIDI-IN is forwarded via MIDI-THRU. Additional MIDI modules can then be connected there.

2. Hardware / connections

2.1 Connection to the euro rack modular system (Doepfer bus)

The module is delivered with a connected ribbon cable for the Doepfer bus. The red lead marks -12 volt. Connecting the module please note the right polarity!

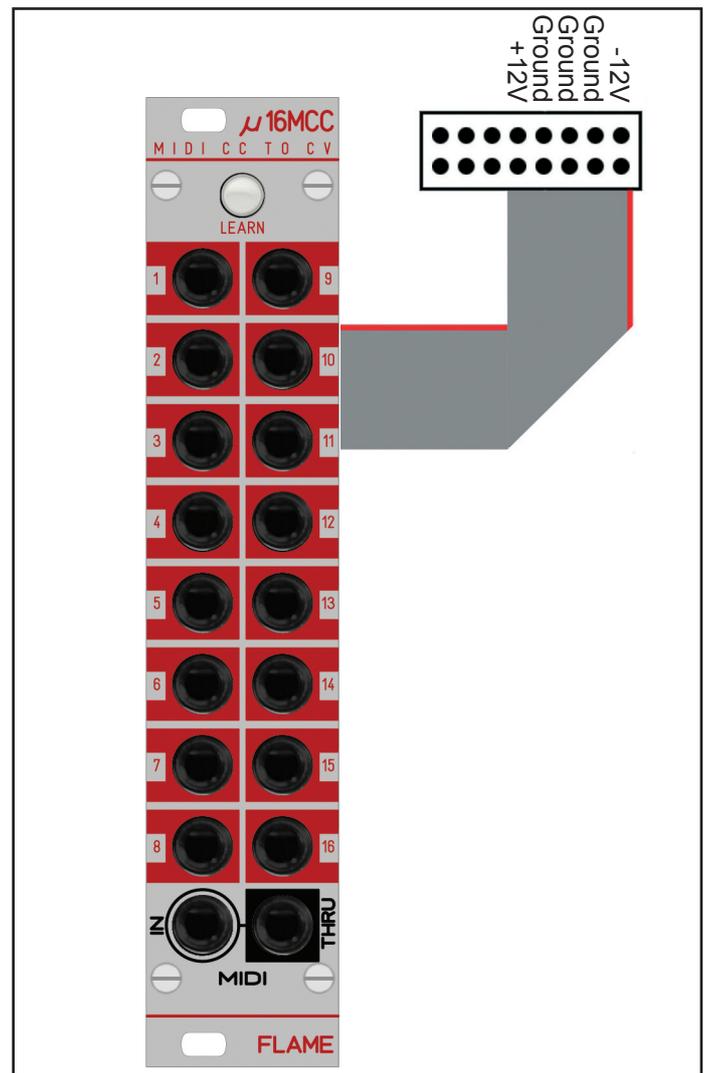
If the module is poled accidentally wrong safety diodes avoid the immediate destruction of the module but further damages cannot be expected.

So please pay attention: Check the connection various times before switching on!

The current consumption of the module is on average 50mA.

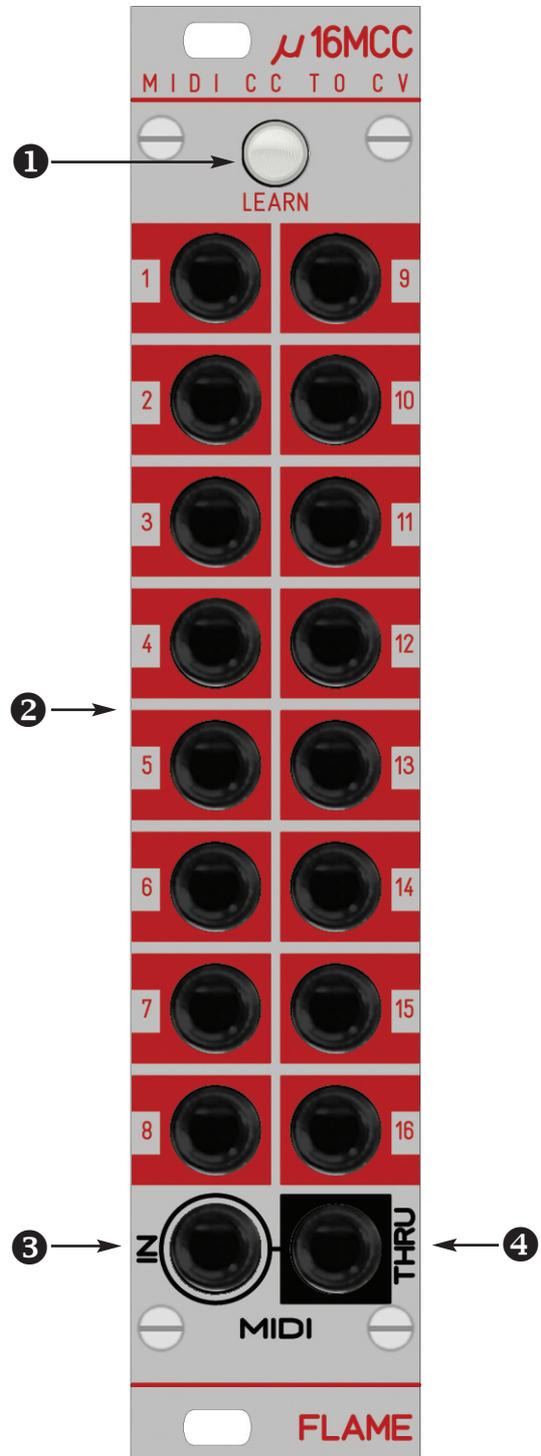
CAUTION!

Do not accidentally connect the MIDI THRU output to high CV voltages! This can possibly damage the hardware!



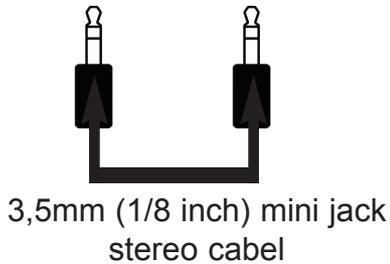
2.2 Module overview

- ❶ LEARN button
- ❷ 16 CV outputs (0..+5V)
- ❸ MIDI input (MIDI TRS-B Standard)
- ❹ MIDI THRU output (MIDI TRS-B Standard)

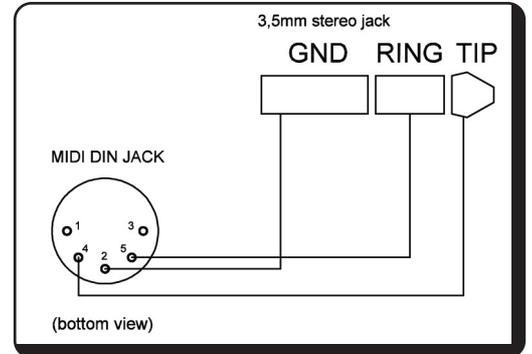


2.3 MIDI connections

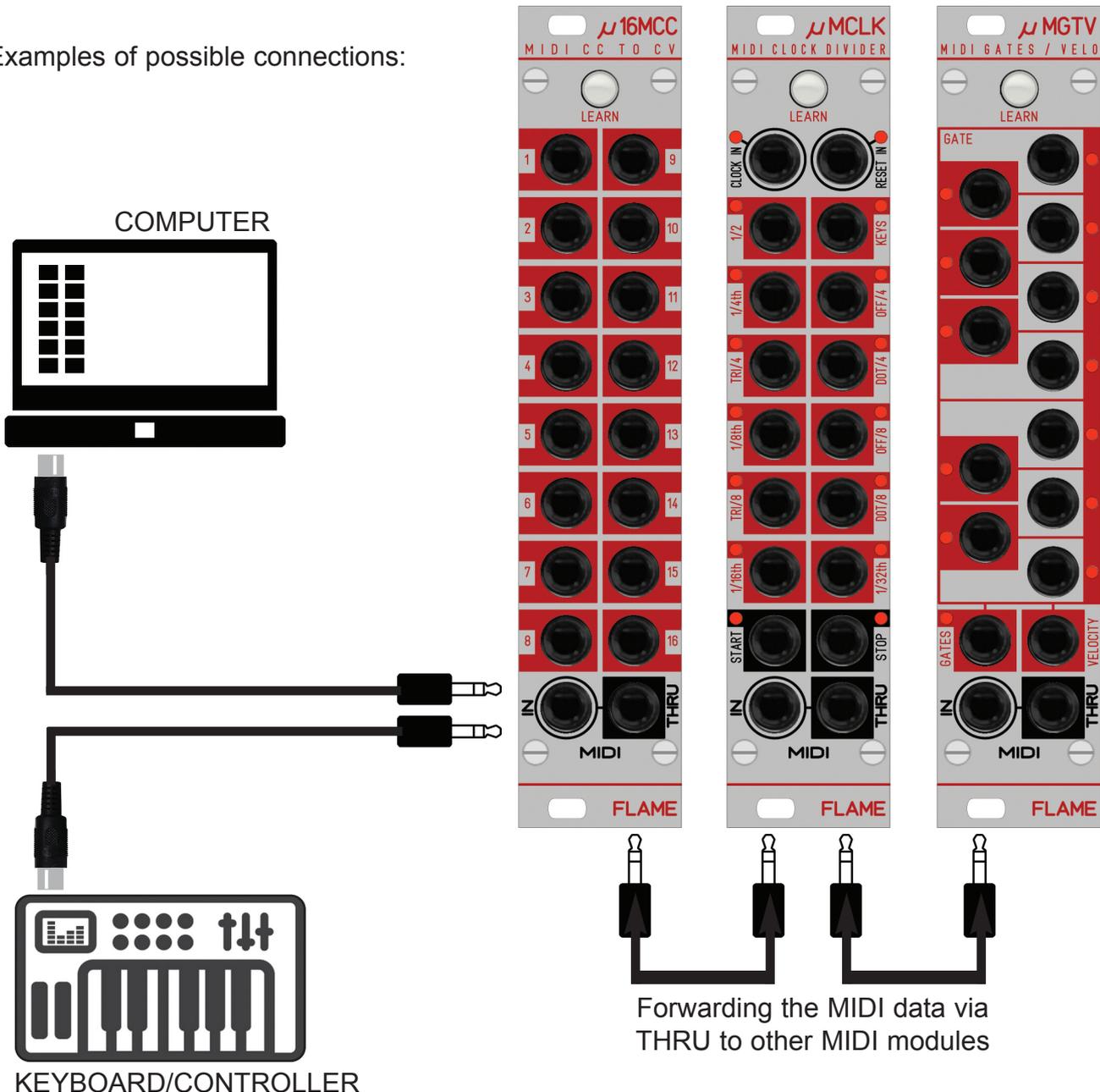
The module has two MIDI sockets (TRS-B standard mini jacks) INPUT and THRU. Connect the MIDI input to the MIDI output of your keyboard / controller or computer. The data received at MIDI-IN is forwarded via MIDI-THRU. A corresponding commercially available adapter (MIDI-DIN to Mini TRS-B) or a 3.5mm (1/8 inch) stereo jack cable is used for the MIDI connection.



Adaptor schemata
MIDI DIN jack to
3,5mm (1/8 inch) mini jack
MIDI TRS-B standard



Examples of possible connections:



3. Handling

3.1 CONTROLLER INTERFACE CC to CV

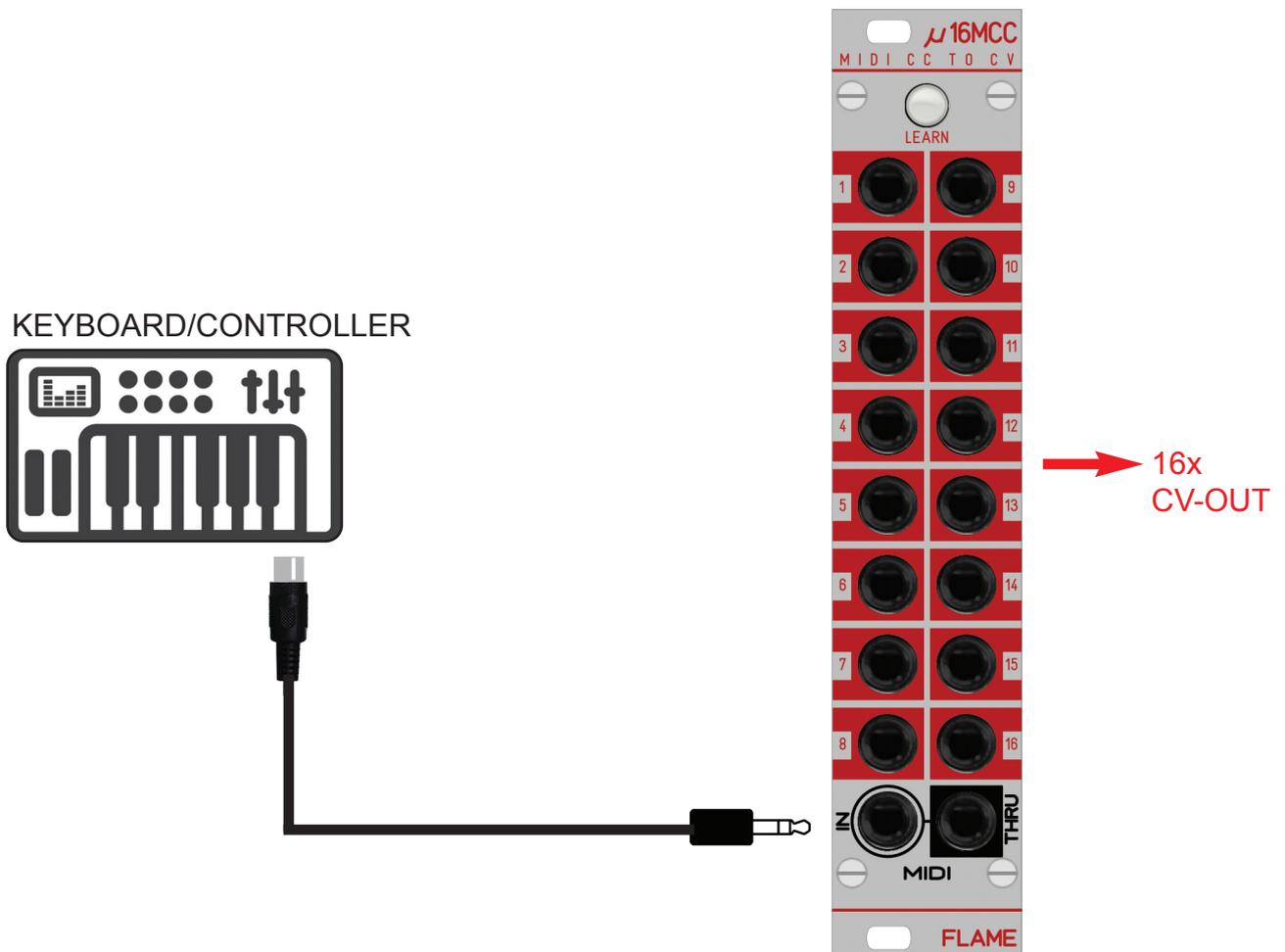
Connect the MIDI input of the module to the MIDI output of a device that can send MIDI control change commands.

The module is preset to MIDI channel 1 with controller numbers 1-16. Make sure that your connected controllers transmit on these numbers and MIDI channel 1.

For example, if you send controller number 1 (modulation wheel) on MIDI channel 1, then you change the output voltage at output 1.

All CV outputs operate in the voltage range from 0V to + 5V.

If your controllers send other controller numbers or on other MIDI channels, you have to reprogram the module using the LEARN function or SYSEX!
(See the next chapters)



3.2 LEARN function

You can assign each CV output its own controller number on a different or the same MIDI channel. To do this, you need a MIDI keyboard to send notes, as well as controls that the desired controllers can send (or a computer).

Proceed as follows:

Press the LEARN button until it flashes. To select the CV output to be reprogrammed using LEARN, press the keyboard key defined for the output once (note number see graphic below).

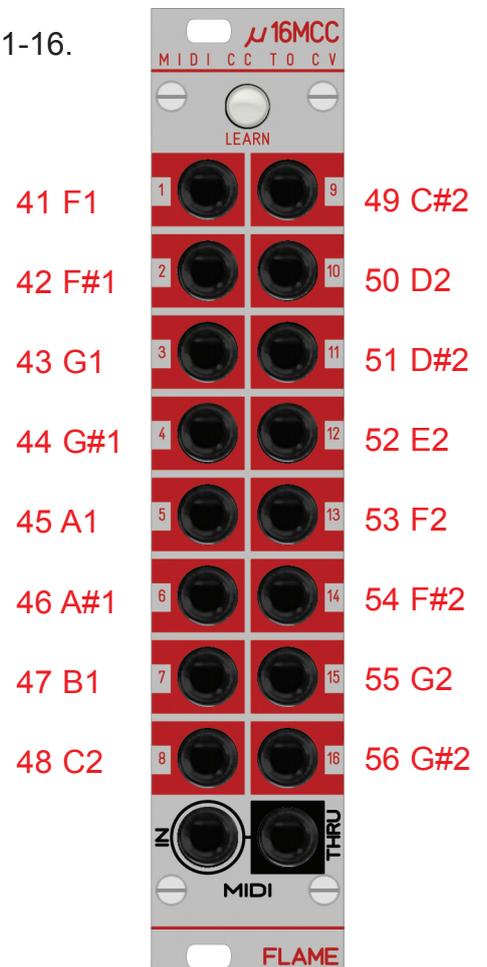
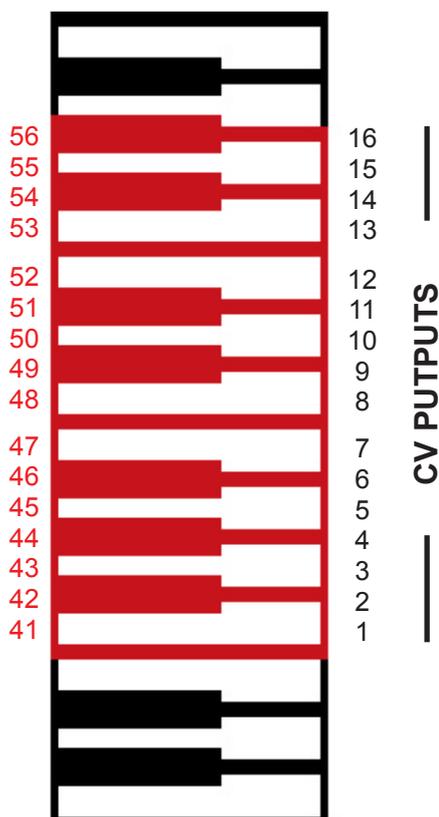
NOTE: The module can receive notes on all MIDI channels, the only decisive factor is the specified note number for the CV output!

The LEARN button now lights up permanently. Now send the controller that you want to assign to the CV output (e.g. turning the controller or modulation wheel). The module stores the controller number as well as the MIDI channel on which it was sent. After receiving the controller number, the LEARN key flashes again.

Then proceed with the other CV outputs, if necessary, by first selecting the output with a note (keyboard key) and then sending the controller.

Leave the LEARN mode by pressing the LEARN button again until the flashing stops. The data learned in this way is automatically permanently saved in the internal memory and reloaded when it is switched on again.

Note numbers 41-56 (F1-G # 2) are defined for CV outputs 1-16.



3.3 Settings via SYSEX files

The assignment of the CV outputs with other controller numbers and MIDI channel can also be done via SYSEX dump. Some SYSEX files are available for this. These can be loaded with a MIDI SYSEX dump program (e.g. MIDI-OX or Elektron C6) from a computer via MIDI. After receiving the SYSEX file, the data is saved permanently.

NOTE:

When the SYSEX data is received, the LEARN LED lights up permanently and goes out when reception is successful. If the SYSEX reception was faulty, the LED flashes several times in quick succession, it is then not saved and the old data are retained. The reception can also be canceled with the LEARN key.

DETAILS:

There are two types of files:

- Type 1: Files that change all controller numbers and the midi channel of all CV outputs
- Type 2: Files that only change the MIDI channels of all CV outputs

TIP:

If you have programmed the module with your own controller numbers and all on the same MIDI channel via LEARN, but later only want to change the MIDI channel, you can do this relatively easily by loading a SYSEX file without having to reprogram all controller numbers via LEARN !

You can download these ready-made files from the FLAME website.

You can also create your own SYSEX files (for example with the freeware program MIDI-OX).

An overview and documentation of the implemented SYSEX data formats can be found in the next chapter.

3.4 SYSEX Data format

The assignment of the controller numbers and the MIDI channels for the respective CV outputs can be done with the help of SYSEX data. The module can receive two different types of SYSEX files:

Typ 1: SYX files that change all controller numbers with midi channel for all CV outputs

11110000	F0	Exclusive Status
01111101	7D	Header Flame module
00001011	0B	Flame module "µ16MCC"
00000001	01	version 1
00000110	06	data type 1 (dump all data)
0000xxxx	ch1	16 data bytes MIDI channels for CV outputs 1-16 (range: 00=channel 1 .. 0F=channel 16)
0000xxxx	ch16	
0xxxxxxx	cc1	16 data bytes control change numbers for CV outputs 1-16 (range: 00=CCnr 0 .. 7F=CCnr 127)
0xxxxxxx	cc16	
11110111	F7	End of Exclusive
(total 38 bytes)		

Typ 2: SYX files that only change the MIDI channels of all CV outputs

11110000	F0	Exclusive Status
01111101	7D	Header
00001011	0B	Flame module "µ16MCC"
00000001	01	version 1
00000111	07	data type 2 (dump data all MIDI channels)
0000xxxx	ch1	16 data bytes MIDI channels for CV outputs 1-16 (range: 00=channel 1 .. 0F=channel 16)
0000xxxx	ch16	
11110111	F7	End of Exclusive
(total 22 bytes)		

4. Appendix

4.1. Technical details

Connections:

Ribbon cable adapter for Doepfer bus +/-12Volt

Inputs: 1x MIDI (TRS-B standard) 1/8th inch stereo jack

Outputs: 1x MIDI (TRS-B standard) 1/8th inch stereo jack
16x CV 0..+5v, 1/8th inch mono jacks

Control elements:

1 push button with LED (LEARN key)

Current consumption: ca. + 50mA / - 30 mA

Size: Euro rack format 3U / 6HP 30x128,5x40 mm

4.2 Warrenty

Beginning from the date of purchase a 2-year warranty is guaranteed for this device in case of any manufacturing errors or other functional deficiencies during runtime. The warranty does not apply in case of:

- damage caused by misuse
- mechanical damage arising from careless treatment (dropping, vigorous shaking, mishandling, etc)
- damage caused by liquids penetrating the device
- heat damage caused by overexposure to sunlight or heating
- electric damage caused by improper connecting
(wrong power supply/ jacks/ MIDI connections/ voltage problems).

If you have any complaints please contact your dealer or send an e-mail to:
service@flame-instruments.de

4.3 Terms of production

conformity: CE, RoHS, UL

4.4 Disposal

The device is produced with RoHS-conformity (subject to the regulations of the European Union) and is free of hazardous substances (like mercury, plumb, cadmium and hexavalent chrome). But electronical scrap is hazardous waste. Please don't add this to consumer waste. For an environment friendly disposal of waste please contact your distributor or specialist dealer.

4.3 Support

Updated and additional informations, updates, downloads and more see:
www.flame-instruments.de

4.4 Acknowledgment

For help and assistance big thanks to: Alex4 and Schneiders Büro Berlin, Shawn Cleary (Analogue haven, Los Angeles), Thomas Wagner, Robert Junge, Anne-Kathrin Metzler, Lena Büniger and Alex Wolter.