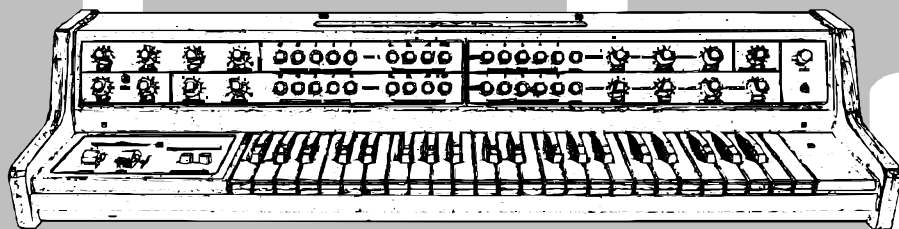


# VS-MIDI

## MIDI Interface for Vermona Synthesizer

Model 8-434  
Version 2.0



## Owner's Manual



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## 1 FEATURES

VS-MIDI is a MIDI retrofit for Vermona Synthesizer. The VS-MIDI interface controls VCO, EG, VCF and VCA circuits of the Vermona Synthesizer via MIDI commands.

The interface only receives MIDI data and converts them to signals for the Vermona Synthesizer control. The instrument's own control elements (keyboard, switches, knobs, etc.) are not transmitted as a MIDI data and their status cannot be saved in the interface's memory as a patch.

All functions of the interface are simply controlled by standard MIDI commands (CCs, Program Change, etc.). Some special functions controlled by MIDI SysEx messages are available for advanced users.

The interface has internal memory for saving of interface's own settings. Content of the memory can be backed up in any MIDI DAW, sequencer, etc.

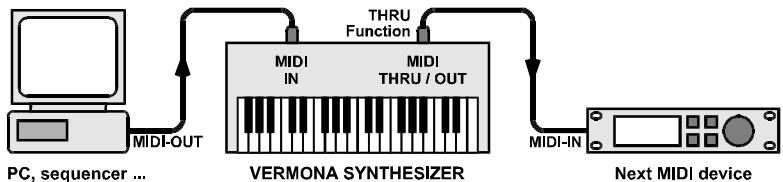
## 2 CONNECTION TO MIDI SYSTEM

The interface has connectors for both MIDI data input and output. Standard MIDI cables<sup>1</sup> are used to connect other MIDI devices.

### 2.1 STANDARD WORKING MODE SET-UP

Fig. 1 – Connection to MIDI system for standard working mode

Data from the host MIDI system (PC, DAW, sequencer, master keyboard, etc.) are coming to MIDI-IN input of the interface.



All MIDI data<sup>2</sup>

coming to the MIDI input are transferred unaffected to MIDI-THRU/OUT output of the interface (THRU function). The THRU function enables another MIDI device(s) to be connected without additional MIDI Thru-Box. MIDI input of the other (next in chain) MIDI device can be simply fed from MIDI-THRU/OUT output of the interface (see fig. 1).

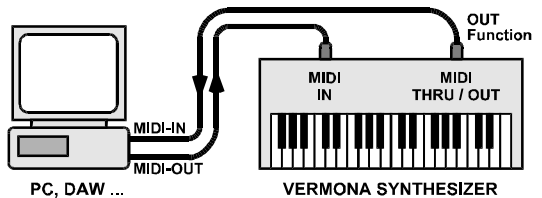
If there are no other MIDI devices to be used, only MIDI-IN cable is necessary (from MIDI output of host system to MIDI-IN input of the interface).

### 2.2 INTERFACE MEMORY BACK-UP SET-UP

Fig. 2 – Connection to MIDI system for memory content transfer

The interface can transmit its own MIDI System Exclusive data. These messages are used for back-up / recovery of the internal memory settings.

To back-up the memory of the interface, connect interface's THRU/OUT MIDI output to MIDI input of the host system (PC, DAW, sequencer...) (see fig. 2).



<sup>1</sup> The cables equipped with DIN 41524 connectors (5 pins / 180°).

<sup>2</sup> All MIDI data except own specific System Exclusive messages for the VS-MIDI interface. These System Exclusive messages are filtered.

<sup>3</sup> **Attention!** Disable the MIDI ECHO, THRU, ... functions of your sequencer in this case to prevent communication loops that might "freeze" your MIDI system (see chapter 6.3)!

### 3 INTERFACE OPERATION

The interface doesn't have any manual control element. All functions of the interface are controlled by interfaces parameters (see chapter 4). The parameters can be set / adjusted by MIDI commands only. Most of them are simply set by MIDI Control Changes - CCs (see chapter 5.1.2).

Working status of the interface is indicated by bi-color LED. The indication LED is placed under the "MAINS" switch on the instrument's front panel. The LED lights red in quiescent condition – it indicates power-on status of the Vermona Synthesizer instrument. An interface activity can be indicated by the yellow light of the indication LED. Mode of the LED indication is user selectable (see chapter 4.2.13). If there is an error occurred, the indication LED starts to blink periodically (see chapter 6.2).

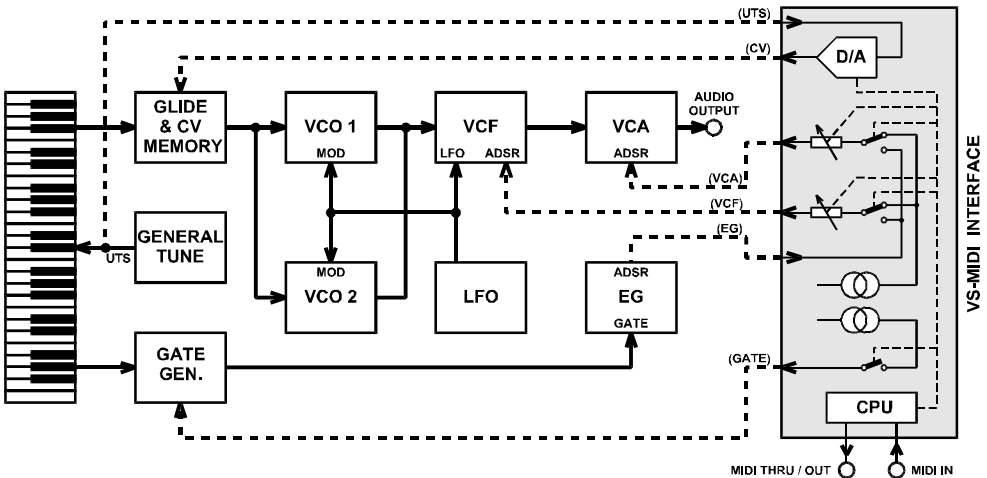
#### 3.1 RESET STATUS

When the Vermona Synthesizer instrument is switched on, the interface is disabled (it does not affect the instrument) and the instrument can be used usual way like no MIDI interface has been installed. The interface is now monitoring the incoming MIDI data.

#### 3.2 MIDI MODE

When an acceptable MIDI command (see chapter 5) is received, the interface turns to MIDI mode automatically and takes control over instrument's circuits (see fig. 3) accordingly to the incoming MIDI data.

Fig. 3 – MIDI mode block diagram



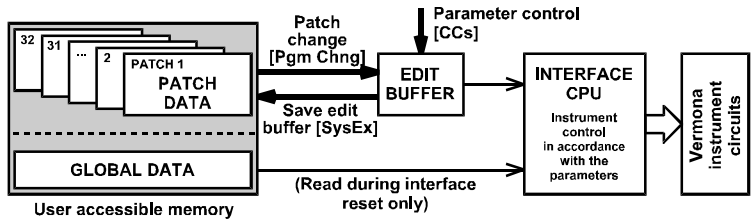
After that, the instrument's own keyboard can not be used yet<sup>4</sup>! All knobs and switches of the instrument still work the standard way. If you want to use the instrument's own keyboard again, you have to switch the instrument off and then on again after a moment<sup>5</sup>.

<sup>4</sup> Simultaneous usage of MIDI Notes and instrument's own keyboard causes that the instrument is playing considerably out of tune (see chapter 6.1)!  
<sup>5</sup> Interface reset can be also executed by the MIDI common system command "Reset" or by System Exclusive message "HW Reset" (see MIDI SysEx Communication manual).

## 4 INTERFACE PARAMETERS

Fig. 4 – Interface's parameter memory structure

The parameters are divided in two basic groups – interface global (system) parameters and interface patch parameters (see fig. 4). All interface parameters are stored in user accessible internal memory of the interface. There is one memory for the global parameters and 32 memories for the interface patch parameters available.



### 4.1 INTERFACE GLOBAL SYSTEM PARAMETERS

Interface global parameters control the basic functions and hardware of the interface. The global parameters are always valid independently on the actually selected patch of the interface. They are automatically loaded from the memory during reset sequence of the interface.

Values of the global parameters can be changed by MIDI SysEx Messages only (please see the MIDI SysEx Communication manual for details). Factory pre-defined values of the global parameters are listed in the table below.

Table 1 – Range of valid values and factory preset values of global parameters

Parameter name	Valid range	Factory preset		Chapter
		Value	Meaning	
MIDI Channel	0 ~ 15	0	MIDI Channel Nr. 1 is selected	4.1.1
VCF CC Nr.	0 ~ 119	29	CC #29 controls VCF Cutoff Frequency	4.1.2
VCA CC Nr.	0 ~ 119	30	CC #30 controls VCA Level	4.1.3
EG Break Pulse Duration	0 ~ 58	6	Break Pulse Duration is 4 ms	4.1.4
VCO Calibration Constant	0 ~ 127	64	None shift of control voltage for VCO	4.1.5

#### 4.1.1 MIDI CHANNEL

The parameter selects the receiving MIDI channel of the interface for standard MIDI Channel commands (see chapter 5.1). It is possible to choose any of the 16 MIDI channels.

Valid parameter values are 0 ~ 15: Value 0 represents MIDI channel Nr.1, value 1 selects MIDI channel Nr. 2 etc. up to value 15 which selects MIDI channel Nr. 16.

#### 4.1.2 VCF CC Nr.

VCF cutoff frequency can be controlled by instrument's own envelope generator (EG) or directly by just one MIDI CC (see chapter 4.2.3). Number of the CC selected for direct VCF control is user definable by the **VCF CC Nr.** global parameter.

Valid parameter values are 0 ~ 119. The value defines number of the CC selected for the VCF control.

**Remark:** If the selected CC is used for a different purpose already (e.g. CC64 – Hold, CC68 – Legato, CC 16~28 – preset parameters, etc.), all these functions of the CC are disabled and the CC controls only the VCF cutoff frequency!

### 4.1.3 VCA CC Nr.

VCA level can be controlled by instrument's own envelope generator (EG) or directly by just one MIDI CC (see chapter 4.2.7). Number of the CC selected for direct VCA control is user definable by the **VCA CC Nr.** global parameter.

Valid parameter values are 0 ~ 119. The value defines number of the CC selected for the VCA control.

**Remark:** *If the selected CC is used for a different purpose already (e.g. CC64 – Hold, CC68 – Legato, CC 16~28 – preset parameters, etc.), all these functions of the CC are disabled and the CC controls only the VCA level!*

### 4.1.4 EG BREAK PULSE DURATION

The parameter defines duration of interrupt pulses for instrument's envelope retrigger generated by the interface for non-legato playing style (see fig. 7).

Valid parameter values are 0 ~ 58. It corresponds to the duration from 1 to 30 ms (see chapter 6.4).

### 4.1.5 VCO CALIBRATION CONSTANT

Parameter sets the calibration constant of the D/A converter controlling the VCO of the instrument when the exact tuning of the master MIDI keyboard is required.

Valid parameter values are 0 ~ 127. It corresponds to the fine tune of approx.  $\pm 100$  cents (see chapter 6.5).

## 4.2 INTERFACE PATCH PARAMETERS

The interface patch parameters define how the received MIDI commands affect sound of the Vermona Synth instrument. Next chapters describe how the patch parameters control individual instrument's circuits.

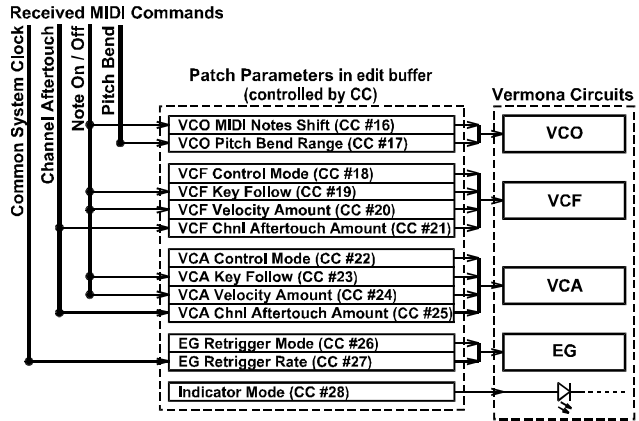
**Table 2 – Interface patch parameters**

Parameter name	Valid values	Function	CC Nr.	Chapter
VCO MIDI Notes Shift	0 ~ 84	Transposes MIDI Notes over the keyboard range	16	4.2.1
VCO Pitch Bend Range	0 ~ 12	Adjusts MIDI Pitch Bend maximal range	17	4.2.2
VCF Control Mode	0 ~ 2	Selects mode of VCF cutoff frequency control	18	4.2.3
VCF Key Follow <sup>1)</sup>	0 ~ 127	Range of VCF modulation by MIDI Note Nr.	19	4.2.4
VCF Velocity Amount <sup>1)</sup>	0 ~ 127	Range of VCF modulation by MIDI Notes velocity	20	4.2.5
VCF Chnl Aftertouch Amount <sup>1)</sup>	0 ~ 127	Range of VCF modulation by MIDI Channel Aftertouch	21	4.2.6
VCA Control Mode	0 ~ 2	Selects mode of VCA level control	22	4.2.7
VCA Key Follow <sup>2)</sup>	0 ~ 127	Range of VCA modulation by MIDI Note Nr.	23	4.2.8
VCA Velocity Amount <sup>2)</sup>	0 ~ 127	Range of VCA modulation by MIDI Notes velocity	24	4.2.9
VCA Chnl Aftertouch Amount <sup>2)</sup>	0 ~ 127	Range of VCA modulation by MIDI Channel Aftertouch	25	4.2.10
EG Retrigger Mode	0 ~ 2	Selects mode of EG control	26	4.2.11
EG Retrigger Rate <sup>3)</sup>	0 ~ 127	Selects rate of EG retrigger	27	4.2.12
Indicator Mode	0 ~ 3	Selects mode of interface's LED indicator	28	4.2.13

<sup>1)</sup> The parameter is not active in VCF Control Mode "Controller" (VCF Control Mode = 2)  
<sup>2)</sup> The parameter is not active in VCA Control Mode "Controller" (VCA Control Mode = 2)  
<sup>3)</sup> The parameter is not active in EG Retrigger Mode "Off" (EG Retrigger Mode = 0)

**Fig. 5 – Function of the interface patch parameters**

The patch parameters are loaded from the interface memory to the edit buffer (see fig. 4) and they control the interface's functions from here<sup>6</sup>. Values of all interface patch parameters in edit buffer can be modified by MIDI CCs (see chapter 5.1.2.2) - it is possible to change them in a real time during playing the instrument (see fig. 5). These changes are temporary only. If necessary, new setting of the parameters can be stored in an user patch memory - up to 32 interface patch parameters settings can be stored (see MIDI SysEx Communication manual). These settings are recalled from the memory by Program Change standard MIDI command (see chapter 5.1.5).



#### 4.2.1 VCO MIDI NOTES SHIFT (CC #16)

The parameter adjusts assignment of received MIDI Note numbers to the instrument keys. The parameter value specifies exactly the number of MIDI Note which is assigned to the lowest key of the instrument's keyboard. It can be changed by MIDI CC Nr. 16 - see chapter 5.1.2.2.

The parameter value can be from 0 to 84. If value 0 is set, the lowest key on the keyboard corresponds to MIDI Note Nr. 0 and the highest key corresponds to MIDI Note Nr. 43. If value 1 of the parameter is set, the lowest key on the keyboard corresponds to MIDI Note Nr. 1 and the highest key corresponds to MIDI Note Nr. 44, etc. up to value 84 of the parameter when the lowest key of the keyboard corresponds to MIDI Note Nr. 84 and the highest key corresponds to MIDI Note Nr. 127. See fig. 6 on next page for more details.

#### 4.2.2 VCO PITCH BEND RANGE (CC #17)

This parameter is active only for Pitch Bend MIDI command. It doesn't work with instrument's PITCH wheel control element!

The parameter adjusts maximal allowed VCO's pitch bending for full range of MIDI Pitch Bend. It can be changed by MIDI CC Nr. 17 - see chapter 5.1.2.2.

The parameter value is from 0 to 12. The 0 value switches the pitch bend off – the Pitch Bend MIDI command is ignored. The values of 1 to 12 are equal to bending the pitch in semitones. Bending up to  $\pm 1$  octave is available thus.

**Remark:** The detune range of the VCO upwards can be limited for the highest octave and detune range higher than approximately 4 semitones. This limitation is caused by the construction of the Vermona Synthesizer and it cannot be removed.

#### 4.2.3 VCF CONTROL MODE (CC #18)

The parameter selects method of the instrument's VCF control. It can be changed by MIDI CC Nr. 18 - see chapter 5.1.2.2.

The parameter value is 0 to 2. Three control modes are available thus:

<sup>6</sup> During the interface reset, neutral values of the parameters are loaded into the edit buffer so that the interface doesn't affect the instrument.

Fig. 6 – VCO MIDI Notes Shift parameter

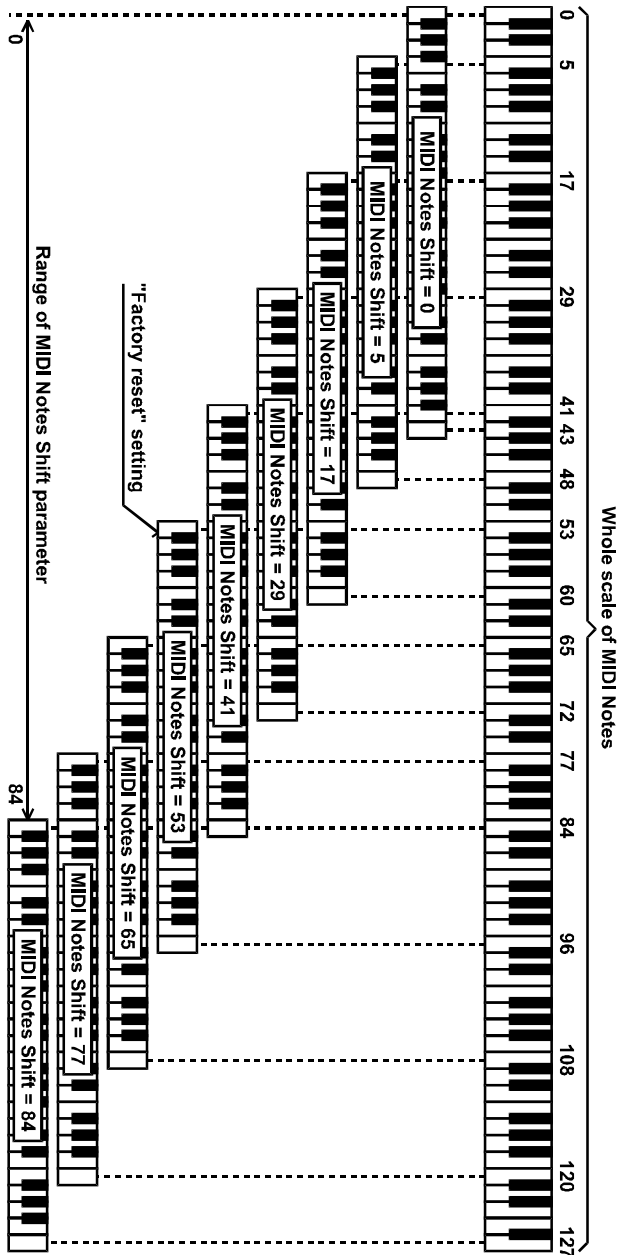
- **0 → EG:** Standard way of VCF control where the instrument's own envelope generator (EG) is used for the VCF control. The VCF cutoff frequency is simultaneously controlled by the "Note-On + Velocity" and "Channel Aftertouch" MIDI commands accordingly to settings of the other VCF parameters<sup>7</sup>.
- **1 → GATE:** Internal envelope generator (EG) of the instrument is disabled and VCF is controlled by the square gate signal (equivalent of EG setting: ATTACK = 0, DECAY = 0, SUSTAIN = max., RELEASE = 0). The VCF cutoff frequency is still controlled by the "Note-On + Velocity" and "Channel Aftertouch" MIDI commands accordingly to settings of the other VCF parameters<sup>7</sup>.
- **2 → CC:** VCF is controlled by one MIDI CC selected by the global parameter "VCF CC Nr." (see chapter 4.1.2). In this case, the VCF cutoff frequency is controlled by the values of selected CC only. The "Note-On" and "Channel Aftertouch" MIDI commands and the other VCF parameters<sup>7</sup> do not affect the VCF modulation – they are ignored.

This working mode can be used for creation of special sound effects etc.

#### 4.2.4 VCF KEY FOLLOW (CC #19)

The parameter sets affecting level of the instrument's VCF cutoff frequency by position of key on the MIDI keyboard (i.e. in dependence on tone height). It can be changed by MIDI CC Nr. 19 - see chapter 5.1.2.2.

The parameter value is 0 to 127. If the value is equal to 64, the VCF remains unaffected by the key position. For the



<sup>7</sup> I.e. VCF Key Follow, VCF Velocity Amount and VCF Channel Aftertouch parameters.



parameter values from 65 to 127, the VCF cutoff frequency is increased proportionally to the MIDI note number. For the values from 63 to 0, the VCF cutoff frequency is decreased proportionally to the MIDI note number.

#### 4.2.5 VCF VELOCITY AMOUNT (CC #20)

The parameter sets the modulation amount of the VCF cutoff frequency by MIDI Note Velocity. It can be changed by MIDI CC Nr. 20 - see chapter 5.1.2.2.

The parameter value is 0 to 127. For 0 value, the VCF isn't affected by the Note Velocity data, value equal to 127 provides maximal modulation level.

#### 4.2.6 VCF CHNL AFTERTOUCH AMOUNT (CC #21)

The parameter sets the modulation amount of the VCF cutoff frequency by Channel Aftertouch MIDI command. It can be changed by MIDI CC Nr. 21 - see chapter 5.1.2.2.

The parameter value is 0 to 127. For 0 value, VCF isn't affected by the Channel Aftertouch MIDI command, value equal to 127 provides maximal modulation level.

#### 4.2.7 VCA CONTROL MODE (CC #22)

The parameter selects method of the instrument's VCA control. It can be changed by MIDI CC Nr. 22 - see chapter 5.1.2.2.

The parameter value is 0 to 2. Three control modes are available thus:

- **0 → EG:** Standard way of VCA control where the instrument's own envelope generator (EG) is used for the VCA control. The VCA level is simultaneously controlled by the "Note-On + Velocity" and "Channel Aftertouch" MIDI commands accordingly to settings of the other VCA parameters<sup>8</sup>.
- **1 → GATE:** Internal envelope generator (EG) of the instrument is disabled and VCA is controlled by the square gate signal (equivalent of EG setting: ATTACK = 0, DECAY = 0, SUSTAIN = max., RELEASE = 0). The VCA level is still controlled by the "Note-On + Velocity" and "Channel Aftertouch" MIDI commands accordingly to settings of the other VCA parameters<sup>8</sup>.
- **2 → CC:** VCA is controlled by one MIDI CC selected by the global parameter "VCA CC Nr." (see chapter 4.1.3). In this case, the VCA level is controlled by the values of selected CC only. The "Note-On" and "Channel Aftertouch" MIDI commands and the other VCF parameters<sup>8</sup> do not affect the VCA modulation – they are ignored.

#### 4.2.8 VCA KEY FOLLOW (CC #23)

The parameter sets affecting level of the instrument's VCA level by position of key on the MIDI keyboard (i.e. in dependence on tone height). It can be changed by MIDI CC Nr. 23 - see chapter 5.1.2.2.

The parameter value is 0 to 127. If the value is equal to 64, the VCA remains unaffected by the key position. For the parameter values from 65 to 127, the VCA level is increased proportionally to the MIDI note number. For the values from 63 to 0, the VCA level is decreased proportionally to the MIDI note number.

#### 4.2.9 VCA VELOCITY AMOUNT (CC #24)

The parameter sets the modulation amount of the VCA level by MIDI Note Velocity. It can be changed by MIDI CC Nr. 24 - see chapter 5.1.2.2.

---

<sup>8</sup> I.e. VCA Key Follow, VCA Velocity Amount and VCA Channel Aftertouch parameters.

The parameter value is 0 to 127. For 0 value, the VCA isn't affected by the Note Velocity data, value equal to 127 provides maximal modulation level.

#### 4.2.10 VCA CHNL AFTERTOUCHE AMOUNT (CC #25)

The parameter sets the modulation amount of the VCF cutoff frequency by Channel Aftertouch MIDI command. It can be changed by MIDI CC Nr. 25 - see chapter 5.1.2.2.

The parameter value is 0 to 127. For 0 value, VCA isn't affected by the Channel Aftertouch MIDI command, value equal to 127 provides maximal modulation level.

#### 4.2.11 EG RETRIGGER MODE (CC #26)

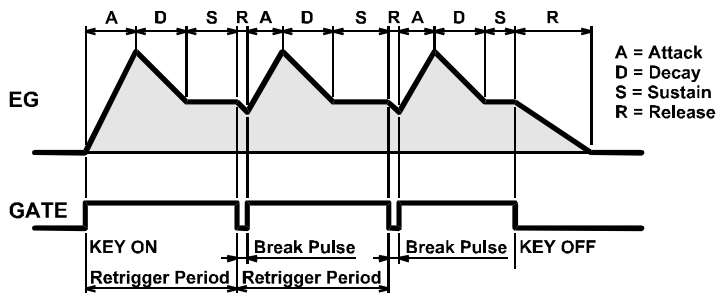
The parameter enables / disables periodical retriggering of the instrument's envelope generator (EG) during a MIDI Note is active. It can be changed by MIDI CC Nr. 26 - see chapter 5.1.2.2.

Fig. 7 – EG Retrigger

The parameter value is 0 to 2. Three retriggering modes are available thus:

- **0 → OFF:** The retriggering is disabled - the instrument's envelope generator (EG) works standard way.
- **1 → FIXED:** Envelope generator (EG) of the instrument is periodically retriggered with fixed period adjusted by the "EG Retrigger Rate" patch parameter (see table 7).
- **2 → MIDI:** Envelope generator (EG) of the instrument is periodically retriggered with period derived from MIDI Clock<sup>9</sup> in dependence on the "EG Retrigger Rate" patch parameter (see table 7).

**Remark:** The parameter is ignored (it is always set "Off") if the Legato style play (CC #68) is on – see chapter 5.1.2.1.



#### 4.2.12 EG RETRIGGER RATE (CC #27)

The parameter sets rate of instrument's envelope generator retrigger if enabled by the "EG Retrigger Mode" patch parameter. It can be changed by MIDI CC Nr. 27 - see chapter 5.1.2.2 and table 7.

#### 4.2.13 INDICATOR MODE (CC #28)

The parameter selects function of yellow LED indicator of the interface. It can be changed by MIDI CC Nr. 28 - see chapter 5.1.2.2.

The parameter value is 0 to 3. Four modes of indication are available thus:

- **0 → Off:** The indicator is off – the LED lights in red continuously.
- **1 → MIDI EVENT:** The LED indicates incoming MIDI events by short blinking.
- **2 → GATE:** The LED indicator copies status of the Gate signal.
- **3 → RETRIGGER RATE:** The LED indicator blinks in the tempo of the envelope generator (EG) retriggering.

<sup>9</sup> Transmitting of MIDI Clock must be enabled on your DAW.

## 5 MIDI IMPLEMENTATION

VS-MIDI interface uses all available MIDI communication methods – Channel Commands, Common System Commands as well as System Exclusive messages<sup>10</sup> for experts.

### 5.1 CHANNEL COMMANDS

The interface recognizes Note-Off, Note-On, Control Changes (CCs), Channel Aftertouch, Pitch Bend and Program Change MIDI channel commands<sup>11</sup>. All MIDI channel commands are received on the MIDI channel defined by the MIDI CHANNEL global parameter (see chapter 4.1.1).

#### 5.1.1 NOTE ON/OFF

The interface accepts Note-On and Note-Off commands in the range of max. 44 notes. Accepted range of the MIDI note numbers are defined by the “MIDI Notes Shift” interface patch parameter (see chapter 4.2.1).

Although the Vermona Synthesizer is monophonic instrument, the interface memories last six active “Note-On” commands. This feature is used when more keys are pressed on a master keyboard and the last pressed key is then released. In this case, the interface switches back to the last previously pressed key. If there are already six keys pressed and a next key is added, the newly added key replaces the key pressed at earliest (the last pressed key has the highest priority).

#### 5.1.2 MIDI CONTROL CHANGES (CCs)

The interface recognizes standardized MIDI CCs (Nr. 64, 68 and 120 ~ 123) and some individually defined CCs (Nr. 16 ~ 31) - see table 3 and description below.

Table 3 – Acceptable CCs overview			
CC Nr.	Name	Function	Valid value
16 <sup>2)</sup>	VCO MIDI Notes Shift (Transpose)	Controls interface parameter	0 ~ 127 (see table 5)
17 <sup>2)</sup>	VCO Pitch Bend Range	Controls interface parameter	0 ~ 127 (see table 6)
18 <sup>2)</sup>	VCF Control Mode	Controls interface parameter	0 ~ 42 = EG 43 ~ 85 = Gate 86 ~ 127 = CC
19 <sup>2)</sup>	VCF Key Follow	Controls interface parameter	0 ~ 63 = Decrement 64 = Off 64 ~ 127 = Increment
20 <sup>2)</sup>	VCF Velocity Amount	Controls interface parameter	0 ~ 127
21 <sup>2)</sup>	VCF Chnl Aftertouch Amount	Controls interface parameter	0 ~ 127
22 <sup>2)</sup>	VCA Control Mode	Controls interface parameter	0 ~ 42 = EG 43 ~ 85 = Gate 86 ~ 127 = CC
23 <sup>2)</sup>	VCA Key Follow	Controls interface parameter	0 ~ 63 = Decrement 64 = Off 64 ~ 127 = Increment
24 <sup>2)</sup>	VCA Velocity Amount	Controls interface parameter	0 ~ 127
25 <sup>2)</sup>	VCA Chnl Aftertouch Amount	Controls interface parameter	0 ~ 127

<sup>10</sup> Please see stand-alone MIDI SysEx Communication manual for details.

<sup>11</sup> So-called Running Status mode of MIDI communication is fully kept for all channel commands.

Table 3 – Acceptable CCs overview - continue

CC Nr.	Name	Function	Valid value
26 <sup>2)</sup>	EG Retrigger Mode	Controls interface parameter	0 ~ 42 = Off 43 ~ 85 = Fixed 86 ~ 127 = MIDI
27 <sup>2)</sup>	EG Retrigger Rate	Controls interface parameter	0 ~ 127 (see table 7)
28 <sup>2)</sup>	Indicator Mode	Controls interface parameter	0 ~ 31 = Off 32 ~ 63 = MIDI Event 64 ~ 95 = Gate 96 ~ 127 = Retrig Rate
64 <sup>1)</sup>	Hold	Standard MIDI function	0 ~ 63 = Off 64 ~ 127 = On
68 <sup>1)</sup>	Legato	Standard MIDI function	0 ~ 63 = Off 64 ~ 127 = On
120 <sup>1)</sup>	All Sound Off	Standard MIDI function	0 = ASO 1 ~ 127 = none function
121 <sup>1)</sup>	Reset All Controllers	Standard MIDI function	0 = RAC 1 ~ 127 = none function
123 <sup>1)</sup>	All Notes Off	Standard MIDI function	0 = ANO 1 ~ 127 = none function
@ VCF CC# <sup>2)</sup>	VCF Direct Control	Direct control of VCF cutoff frequency	0 ~ 127
@ VCA CC# <sup>2)</sup>	VCA Direct Control	Direct control of VCA level	0 ~ 127
<b>Remarks:</b> <sup>1)</sup> Standardized CCs (see chapter 5.1.2.1) <sup>2)</sup> CCs for setting of interface patch parameters (see chapter 5.1.2.2) <sup>3)</sup> User selectable CCs for VCF and VCA direct control (see chapters 4.1.2 and 4.1.3)			

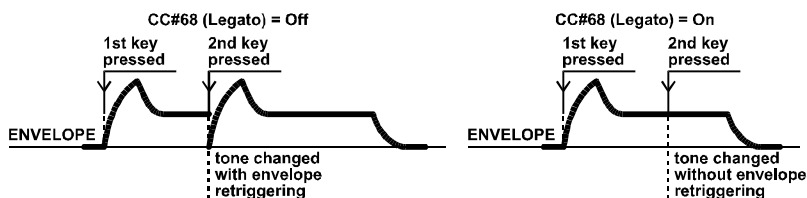
### 5.1.2.1 STANDARDIZED CONTROLLERS

#### CC #64 : Hold

The CC #64 works standard way: holds VCO and EG of the instrument active during the hold pedal is pressed. Values from 64 to 127 are recognized as hold-on status, values from 0 to 63 as hold-off status.

#### CC #68 : Legato

The controller enables (values from 64 to 127) or disables (values from 0 to 63) Legato style play (see fig. 8).



If the Legato is off, the envelope generator (EG) is repeatedly launched every time when a new key is pressed (i.e. a MIDI Note is received) before the previous key is not released yet. If the Legato is on, the newly pressed key (i.e. newly received MIDI note) only changes frequency of the VCO and the envelope generator (EG) remains unaffected.

**Remark:** If the Legato is on, the patch parameter “EG Retrigger Mode” is ignored – it is always set “Off”. After switching the Legato off, the original status of the “EG Retrigger Mode” is recalled.



## CC #120 : All Sound Off (ASO)

All active MIDI Notes are released immediately after reception of CC #120 (note that the value of the CC #120 must be always zero).

## CC #121 : Reset All Controllers (RAC)

Standardized MIDI CCs and MIDI Pitch Bend are set to their initial status after the CC #121 reception (note that the value of the CC #121 must be always 0):

<b>CC #64</b> (Hold)	→ off (value 0)
<b>CC #68</b> (Legato)	→ off (value 0)
<b>Pitch Bend</b>	→ middle position (value 4096)

## CC #123 : All Notes Off (ANO)

All active MIDI Notes are released immediately after reception of CC #123 (note that the value of the CC #123 must be always zero).

### 5.1.2.2 CONTROLLERS FOR INTERFACE PATCH PARAMETERS EDITING

This group of CCs adjusts values of the interface patch parameters in edit buffer – see fig. 4.

#### CC #16 : VCO MIDI Notes Shift (Transpose)

Controls the parameter VCO MIDI Notes Shift (see chapter 4.2.1). Since the CC #16 value is 0 to 127 and the parameter is 0 to 84 only, received value of the CC #16 is converted as shows table 5 in chapter 6.7.

#### CC #17 : VCO Pitch Bend Range

Controls the parameter VCO Pitch Bend Range (see chapter 4.2.2). Since the CC #17 value is 0 to 127 and the parameter is 0 to 12 only, received value of the CC #17 is converted as shows table 6 in chapter 6.7.

#### CC #18 : VCF Control Mode

Controls the parameter VCF Control Mode (see chapter 4.2.3). Since the CC #18 value is 0 to 127 and the parameter is 0 to 2 only, received value of the CC #18 is converted: Values 0 ~ 42 correspond to the "EG" mode, values 43 ~ 85 to the "GATE" mode and values 86 ~ 127 to the "CC" mode.

#### CC #19 : VCF Key Follow

Controls the parameter VCF Key Follow (see chapter 4.2.4). The CC#19 value from 0 to 127 corresponds to the parameter value directly. Note that the CC#19 works as an offset controller - neutral value is 64.

#### CC #20 : VCF Velocity Amount

Controls the parameter VCF Velocity Amount (see chapter 4.2.5). The CC#20 value from 0 to 127 corresponds to the parameter value directly.

#### CC #21 : VCF Chnl Aftertouch Amount

Controls the parameter VCF Channel (Mono) Aftertouch Amount (see chapter 4.2.6). The CC#21 value from 0 to 127 corresponds to the parameter value directly.

#### CC #22 : VCA Control Mode

Controls the parameter VCA Control Mode (see chapter 4.2.7). Since the CC #22 value is 0 to 127 and the parameter is 0 to 2 only, received value of the CC #22 is converted: Values 0 ~ 42 correspond to the "EG" mode, values 43 ~ 85 to the "GATE" mode and values 86 ~ 127 to the "CC" mode.

**CC #23 : VCA Key Follow**

Controls the parameter VCA Key Follow (see chapter 4.2.8). The CC#23 value from 0 to 127 corresponds to the parameter value directly. Note that the CC#23 works as an offset controller - neutral value is 64.

**CC #24 : VCA Velocity Amount**

Controls the parameter VCA Velocity Amount (see chapter 4.2.9). The CC #24 value from 0 to 127 corresponds to the parameter value directly.

**CC #25 : VCA Chnl Aftertouch Amount**

Controls the parameter VCA Channel (Mono) Aftertouch Amount (see chapter 4.2.10). The CC #25 value from 0 to 127 corresponds to the parameter value directly.

**CC #26 : EG Retrigger Mode**

Controls the parameter EG Retrigger Mode (see chapter 4.2.11). Since the CC #26 value is 0 to 127 and the parameter is 0 to 2 only, received value of the CC #26 is converted: Values 0 ~ 42 correspond to the "OFF" mode, values 43 ~ 85 to the "FIXED " mode and values 86 ~ 127 to the "MIDI " mode.

**CC #27 : EG Retrigger Rate**

Controls the parameter EG Retrigger Rate (see chapter 4.2.12 and table 7). The CC#27 value from 0 to 127 corresponds to the parameter value directly.

**CC #28 : Indicator Mode**

Controls the parameter Indicator Mode (see chapter 4.2.13). Since the CC #28 value is 0 to 127 and the parameter is 0 to 3 only, received value of the CC #28 is converted: Values from 0 to 31 correspond to "OFF" mode, 32 to 63 to "MIDI EVENT" mode, 64 to 95 to "GATE" mode and 96 to 127 to "RETRIG RATE" mode.

**CC @ VCF CC Nr.: VCF Direct Control**

The CC selected by the VCF CC Nr. global parameter (see chapter 4.1.2) controls the instrument's VCF directly if the VCF Control Mode parameter is set to "CC" (see chapter 4.2.3).

**CC @ VCA CC Nr.: VCA Direct Control**

The CC selected by the VCA CC Nr. global parameter (see chapter 4.1.3) controls the instrument's VCA directly if the VCA Control Mode parameter is set to "CC" (see chapter 4.2.7).

**5.1.3 CHANNEL (MONO) AFTERTOUCH**

The command can affect instrument's VCF (cutoff frequency) accordingly to the VCF Chnl Aftertouch Amount interface patch parameter setting (see chapter 4.2.6) and instrument's VCA (level) accordingly to the VCA Chnl Aftertouch Amount interface patch parameter setting (see chapter 4.2.10)

**5.1.4 PITCH BEND**

The command has standard function – it controls instrument's VCO tone bending accordingly to the VCO Pitch Bend Range interface patch parameter setting (see chapter 4.2.2).

**5.1.5 PROGRAM CHANGE**

The command switches the user patches of the interface (see chapter 4.2). Only program numbers from 0 to 31 are accepted. They conforms to interface patches 1 to 32 (see fig. 4). Program numbers from 32 to 127 are ignored by the interface.

Always when an acceptable Program Change MIDI command is received, the instrument is muted. When a next MIDI command is then received, the interface starts to work accordingly to the parameters of newly selected patch.

## 5.2 COMMON SYSTEM COMMANDS

### 5.2.1 CLOCK

The MIDI Clock system command can be used for synchronization of the envelope generator (EG) retrigger if this function is enabled (see chapter 4.2.11).

**Remark:** *The retrigger can work irregularly (some clock pulses will be omitted) if the MIDI tempo is extremely high and value of the "EG Retrigger Rate" is near to maximum<sup>12</sup>.*

### 5.2.2 RESET

When the Reset MIDI system command is received, the interface is forced to the reset status (the same as when the instrument is switched on – see chapter 3.1).

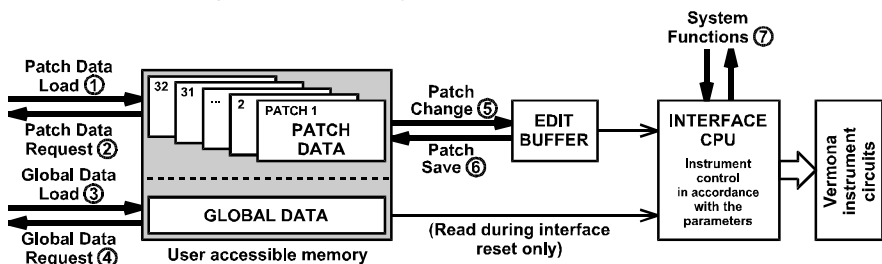
## 5.3 SYSTEM EXCLUSIVE MESSAGES

### 5.3.1 STRUCTURE OF SYSEX COMMUNICATION

The MIDI System Exclusive communication (see fig. 9) enables many operations:

- It enables to rewrite content of any individual patch ① in interface memory as well as content of global parameters bank ③. The content of any individual patch ② or global bank ④ can also be read from the interface on demand.
- Actual active patch can be changed ⑤ or overwritten with data from the edit buffer ⑥.
- System functions ⑦ allow to process some special commands.

Fig. 9 – Structure of System Exclusive communication



Please see the MIDI SysEx Communication manual for detailed description of the SysEx messages structure. The manual is available at our web site ("Support → Manuals & Support Software" page).

<sup>12</sup> See chapter 6.1 for details.



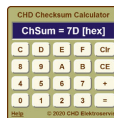
### 5.3.2 SUPPORT FOR SYSEX MESSAGES CREATION

As a support for the users we have made the SysEx Messages Generator software utility (see fig. 10) to create MIDI System Exclusive messages to control the interface. All necessary SysEx messages can be created with this generator without difficult calculating of binary or hexadecimal numbers. The SysEx Messages Generator utility is available at our web site ("Support → Manuals & Support Software" page). Detailed description how to use the utility is available in the MIDI SysEx Communication manual.

**Fig. 10 – SysEx Messages Generator**

If you create a SysEx message yourself, it is necessary to calculate the "Checksum" byte. It can be processed very simply with the CHD Checksum Calculator (see fig. 11). This special software calculator with guide how to use it is available at our web site ("Support → Generally Applicable Software → CHD Checksum Calculator" page).

**Fig. 11 – Checksum calculator**





## 6 APPENDICES

### 6.1 LIMITATION OF THE INTERFACE OPERATION

- The instrument must be controlled only by own keyboard or only by MIDI Notes – do not press keys on the Vermona's keyboard during the MIDI control. It causes that the instrument's VCO sounds totally out of tune!
- Maximal possible range of the instrument's VCO is 3 1/2 octaves. It conforms to range of acceptable MIDI Notes. So a limitation of instrument's VCO detuning by Pitch Bend MIDI command can occur on notes near the low and high ends of the range when the requested detuning is larger than the instrument's VCO capabilities.
- Maximal speed of EG Retrigger is limited by the hardware construction of the instrument. If MIDI clock frequency used for synchronization is extremely fast, the EG can work irregularly (some break pulses might be omitted) especially if very short arpeggio note length is set. In such case, adjustment of the Gate Interrupt Duration system parameter can help (see chapter 6.4).

### 6.2 ERROR STATUS INDICATION

If any fatal error occurs in the very exceptional case during the interface operation, the interface's indication LED blinks in yellow periodically. In this case, the interface must be reset to restore the operation – it is necessary to turn the instrument off and then on after a while.

### 6.3 ERRORS CAUSED BY MIDI LOOP

When the VS-MIDI interface is controlled by a sequencer (DAW) bi-directionally (connection with both MIDI cables – see fig. 2) and the sequencer isn't set correctly, communication loop might occur and the entire MIDI system "freezes". All MIDI data incoming from sequencer to the interface are transferred back to the sequencer (THRU function) – this causes infinite cyclic transfer of the same MIDI data through the sequencer. To avoid this situation, throughput of MIDI data from input to output must be turned off in the sequencer. This function is usually called MIDI ECHO or MIDI THRU. Check the user manual of your Sequencer for that setting.

### 6.4 EG BREAK PULSE DURATION ADJUSTMENT

The length of the break impulses is defined by the following formula:

**EG BREAK PULSE DURATION = (PARAMETER VALUE + 2) / 2** [in milliseconds]

The parameter values range is 0 - 58, corresponding to the length of the break impulses 1 ms - 30 ms. Default value is 6 (e.g. impulse with the length of approx. 4 ms). It is suitable for the most situations, only in the exceptional situations the value of the parameter can be adjusted to provide reliable reaction of the Vermona Synthesizer EG circuits. (see fig. 5).

***Remark:** Duration of generated interrupt pulses need not be changed from the factory pre-defined setting in most cases. Only if the instrument reacts unreliable (i.e. some pulses are omitted and the envelope generator runs irregularly) it is necessary to adjust the duration of the pulses.*

### 6.5 VCO CV CALIBRATION

The calibration allows exact adjustment of interface's D/A converter controlling the instrument's VCO. Range of the calibration is approx.  $\pm 100$  cents, tuning step is 1, 5873 cent (see table 8).

***Remark:** The calibration need not be proceed in most cases. Only if tuning of instrument's own keyboard and external MIDI keyboard (DAW) doesn't match, you can correct this by the D/A converter calibration.*

## 6.6 MIDI IMPLEMENTATION CHART

### MIDI IMPLEMENTATION CHART

 Device : **VS-MIDI**

 Date : **8 / 2022**

 Model : **8-434**

 Version : **2.0**

Function		Transmission	Reception	Remarks
Basic	Default	<b>X</b>	1~16	<sup>1)</sup>
Channel	Changed	<b>X</b>	1~16	<sup>1)</sup>
Mode	Default	<b>X</b>	Mode 3	Not Altered <sup>2)</sup>
	Messages	<b>X</b>	<b>X</b>	
Note Number		<b>X</b>	0~127	<sup>3)</sup>
Velocity	Note ON	<b>X</b>	<b>O</b>	
	Note OFF	<b>X</b>	<b>X</b>	
After	Key's	<b>X</b>	<b>X</b>	
Touch	Channel's	<b>X</b>	<b>O</b>	
Pitch Bender		<b>X</b>	<b>O</b>	
Control Changes	1	<b>X</b>	<b>O</b>	Modulation
	16 to 28	<b>X</b>	<b>O</b>	Own controllers – see description
	64	<b>X</b>	<b>O</b>	Hold
	68	<b>X</b>	<b>O</b>	Legato
	120	<b>X</b>	<b>O</b>	All Sound Off
	121	<b>X</b>	<b>O</b>	Reset All Controllers
	@ VCF CC Nr.	<b>X</b>	<b>O</b>	Own controller <sup>4)</sup> – see description
	@ VCA CC Nr.	<b>X</b>	<b>O</b>	Own controller <sup>4)</sup> – see description
Program Change		<b>X</b>	<b>O</b>	Patch Change
System Exclusive		<b>O</b>	<b>O</b>	See description
System	Song Position	<b>X</b>	<b>X</b>	
Common	Song Select	<b>X</b>	<b>X</b>	
	Tune	<b>X</b>	<b>X</b>	
System	Clock	<b>X</b>	<b>O</b>	
Real Time	Command	<b>X</b>	<b>X</b>	
Others	Local ON/OFF	<b>X</b>	<b>X</b>	CC #123
	All Notes Off	<b>X</b>	<b>O</b>	
	Active Sensing	<b>X</b>	<b>X</b>	
	Reset	<b>X</b>	<b>O</b>	
Notes : <sup>1)</sup> Can be changed by user <sup>2)</sup> Six last received notes are memorized <sup>3)</sup> Position of 44 acceptable Note numbers depends on MIDI Notes Shift parameter setting <sup>4)</sup> Numbers of these CCs are user selectable				

 Mode 1 : **OMNI ON, POLY**

 Mode 2 : **OMNI ON, MONO**
**O** : Yes

 Mode 3 : **OMNI OFF, POLY**

 Mode 4 : **OMNI OFF, MONO**
**X** : No

**6.7 CONVERSION TABLES**

Table 5 – Conversion of CC #16 value to “VCO MIDI NOTES SHIFT” parameter value									
CC value	Param. value	CC value	Param. value	CC value	Param. value	CC value	Param. value	CC value	Param. value
0 ~ 1	0	26 ~ 27	17	52	34	77 ~ 78	51	103	68
2 ~ 3	1	28	18	53 ~ 54	35	79	52	104 ~ 105	69
4	2	29 ~ 30	19	55	36	80 ~ 81	53	106	70
5 ~ 6	3	31	20	56 ~ 57	37	82	54	107 ~ 108	71
7	4	32 ~ 33	21	58	38	83 ~ 84	55	109	72
8 ~ 9	5	34	22	59 ~ 60	39	85	56	110 ~ 111	73
10	6	35 ~ 36	23	61	40	86 ~ 87	57	112	74
11 ~ 12	7	37	24	62 ~ 63	41	88	58	113 ~ 114	75
13	8	38 ~ 39	25	64	42	89 ~ 90	59	115	76
14 ~ 15	9	40	26	65 ~ 66	43	91	60	116 ~ 117	77
16	10	41 ~ 42	27	67	44	92 ~ 93	61	118	78
17 ~ 18	11	43	28	68 ~ 69	45	94	62	119 ~ 120	79
19	12	44 ~ 45	29	70	46	95 ~ 96	63	121	80
20 ~ 21	13	46	30	71 ~ 72	47	97	64	122 ~ 123	81
22	14	47 ~ 48	31	73	48	98 ~ 99	65	124	82
23 ~ 24	15	49	32	74 ~ 75	49	100	66	125 ~ 126	83
25	16	50 ~ 51	33	76	50	101 ~ 102	67	127	84

Table 6 – Conversion of CC #17 value to “VCO PITCH BEND RANGE” parameter value									
CC value	Param. value	CC value	Param. value	CC value	Param. value	CC value	Param. value	CC value	Param. value
0 ~ 9	±0	30 ~ 39	±3	60 ~ 69	±6	90 ~ 99	±9	120 ~ 127	±12
10 ~ 19	±1	40 ~ 49	±4	70 ~ 79	±7	100 ~ 109	±10		
20 ~ 29	±2	50 ~ 59	±5	80 ~ 89	±8	110 ~ 119	±11		

Table 7 – Conversion of “EG RETRIGGER RATE” parameter and CC #27 value to retrigger frequency / period									
The param. or CC #27 value	Mode (param. EG RETRIGGER MODE)				The param. or CC #27 value	Mode (param. EG RETRIGGER MODE)			
	FIXED		MIDI			FIXED		MIDI	
	Freq. [Hz]	Period [sec]	Period [ticks]	Note length		Freq. [Hz]	Period [sec]	Period [ticks]	Note length
0	0,400	2,500	128	-	12	0,579	1,728	116	-
1	0,413	2,424	127	-	13	0,597	1,675	115	-
2	0,425	2,351	126	-	14	0,616	1,624	114	-
3	0,439	2,280	125	-	15	0,635	1,575	113	-
4	0,452	2,210	124	-	16	0,655	1,527	112	-
5	0,467	2,143	123	-	17	0,675	1,481	111	-
6	0,481	2,078	122	-	18	0,696	1,436	110	-
7	0,496	2,015	121	-	19	0,718	1,393	109	-
8	0,512	1,954	120	-	20	0,741	1,350	108	-
9	0,528	1,895	119	-	21	0,764	1,309	107	-
10	0,544	1,837	118	-	22	0,788	1,270	106	-
11	0,561	1,782	117	-	23	0,812	1,231	105	-

**Table 7 – Conversion of "EG RETRIGGER RATE" parameter and CC #27 value to retrigger frequency / period (continue)**

The param. or CC #24 value	Mode (param. EG RETRIGGER MODE)				The param. or CC #24 value	Mode (param. EG RETRIGGER MODE)			
	FIXED		MIDI			FIXED		MIDI	
	Freq. [Hz]	Period [sec]	Period [ticks]	Note length		Freq. [Hz]	Period [sec]	Period [ticks]	Note length
24	0,838	1,194	104	-	68	3,247	0,308	60	-
25	0,864	1,158	103	-	69	3,350	0,299	59	-
26	0,891	1,123	102	-	70	3,454	0,290	58	-
27	0,919	1,089	101	-	71	3,565	0,281	57	-
28	0,947	1,056	100	-	72	3,676	0,272	56	-
29	0,977	1,024	99	-	73	3,788	0,264	55	-
30	1,008	0,992	98	-	74	3,906	0,256	54	-
31	1,040	0,962	97	-	75	4,032	0,248	53	-
<b>32</b>	1,072	0,933	<b>96</b>	<b>1/1</b>	76	4,158	0,241	52	-
33	1,106	0,905	95	-	77	4,283	0,234	51	-
34	1,140	0,877	94	-	78	4,425	0,226	50	-
35	1,176	0,851	93	-	79	4,556	0,220	49	-
36	1,212	0,825	92	-	<b>80</b>	4,706	0,213	<b>48</b>	<b>1/2</b>
37	1,250	0,800	91	-	81	4,854	0,206	47	-
38	1,289	0,776	90	-	82	5,000	0,200	46	-
39	1,330	0,752	89	-	83	5,155	0,194	45	-
40	1,372	0,729	88	-	84	5,319	0,188	44	-
41	1,414	0,707	87	-	85	5,479	0,183	43	-
42	1,459	0,686	86	-	86	5,650	0,177	42	-
43	1,504	0,665	85	-	87	5,831	0,172	41	-
44	1,552	0,645	84	-	88	6,024	0,166	40	-
45	1,600	0,625	83	-	89	6,211	0,161	39	-
46	1,650	0,606	82	-	90	6,390	0,157	38	-
47	1,702	0,588	81	-	91	6,601	0,152	37	-
48	1,754	0,570	80	-	92	6,803	0,147	36	-
49	1,810	0,553	79	-	93	7,018	0,143	35	-
50	1,866	0,536	78	-	94	7,246	0,138	34	-
51	1,925	0,520	77	-	95	7,463	0,134	33	-
52	1,984	0,504	76	-	<b>96</b>	7,692	0,130	<b>32</b>	<b>1/2<sup>3</sup></b>
53	2,047	0,489	75	-	97	7,937	0,126	31	-
54	2,112	0,474	74	-	98	8,197	0,122	30	-
55	2,176	0,460	73	-	99	8,439	0,119	29	-
56	2,245	0,446	72	-	100	8,696	0,115	28	-
57	2,315	0,432	71	-	101	8,969	0,112	27	-
58	2,387	0,419	70	-	102	9,259	0,108	26	-
59	2,463	0,406	69	-	103	9,569	0,105	25	-
60	2,538	0,394	68	-	<b>104</b>	9,852	0,102	<b>24</b>	<b>1/4</b>
61	2,618	0,382	67	-	105	10,152	0,099	23	-
62	2,699	0,371	66	-	106	10,471	0,096	22	-
63	2,786	0,359	65	-	107	10,811	0,093	21	-
<b>64</b>	2,874	0,348	<b>64</b>	<b>1/1<sup>3</sup></b>	108	11,111	0,090	20	-
65	2,963	0,338	63	-	109	11,494	0,087	19	-
66	3,053	0,328	62	-	110	11,834	0,085	18	-
67	3,150	0,318	61	-	111	12,195	0,082	17	-

**Note:** The most used values for MIDI synchronization are marked in bold.

**Table 7 – Conversion of “EG RETRIGGER RATE” parameter and CC #27 value to retrigger frequency / period (continue)**

The param. or CC #24 value	Mode (param. EG RETRIGGER MODE)				The param. or CC #24 value	Mode (param. EG RETRIGGER MODE)			
	FIXED		MIDI			FIXED		MIDI	
	Freq. [Hz]	Period [sec]	Period [ticks]	Note length		Freq. [Hz]	Period [sec]	Period [ticks]	Note length
<b>112</b>	12,579	0,080	<b>16</b>	<b>1/4<sup>3</sup></b>	<b>120</b>	16,129	0,062	<b>8</b>	<b>1/8<sup>3</sup></b>
113	12,987	0,077	15	-	121	16,667	0,060	7	-
114	13,423	0,075	14	-	<b>122</b>	17,094	0,059	<b>6</b>	<b>1/16</b>
115	13,793	0,073	13	-	123	17,699	0,057	5	-
<b>116</b>	14,286	0,070	<b>12</b>	<b>1/8</b>	<b>124</b>	18,182	0,055	<b>4</b>	<b>1/16<sup>3</sup></b>
117	14,706	0,068	11	-	<b>125</b>	18,868	0,053	<b>3</b>	<b>1/32</b>
118	15,152	0,066	10	-	<b>126</b>	19,417	0,052	<b>2</b>	<b>1/32<sup>3</sup></b>
119	15,625	0,064	9	-	<b>127</b>	20,000	0,050	<b>1</b>	<b>1/64<sup>3</sup></b>

**Note:** The most used values for MIDI synchronization are marked in bold.

**Table 8 – Conversion of “VCO CALIBRATION CONSTANT” parameter to VCO fine tune**

Param. value	Tune shift [cent]	Param. value	Tune shift [cent]	Param. value	Tune shift [cent]	Param. value	Tune shift [cent]	Param. value	Tune shift [cent]
0	-101,59	26	-60,32	52	-19,05	78	+22,22	104	+63,49
1	-100,00	27	-58,73	53	-17,46	79	+23,81	105	+65,08
2	-98,41	28	-57,14	54	-15,87	80	+25,40	106	+66,67
3	-96,83	29	-55,56	55	-14,29	81	+26,98	107	+68,25
4	-95,24	30	-53,97	56	-12,70	82	+28,57	108	+69,84
5	-93,65	31	-52,38	57	-11,11	83	+30,16	109	+71,43
6	-92,06	32	-50,79	58	-9,52	84	+31,75	110	+73,02
7	-90,48	33	-49,21	59	-7,94	85	+33,33	111	+74,60
8	-88,89	34	-47,62	60	-6,35	86	+34,92	112	+76,19
9	-87,30	35	-46,03	61	-4,76	87	+36,51	113	+77,78
10	-85,71	36	-44,44	62	-3,17	88	+38,10	114	+79,37
11	-84,13	37	-42,86	63	-1,59	89	+39,68	115	+80,95
12	-82,54	38	-41,27	<b>64</b>	<b>±0,00</b>	90	+41,27	116	+82,54
13	-80,95	39	-39,68	65	+1,59	91	+42,86	117	+84,13
14	-79,37	40	-38,10	66	+3,17	92	+44,44	118	+85,71
15	-77,78	41	-36,51	67	+4,76	93	+46,03	119	+87,30
16	-76,19	42	-34,92	68	+6,35	94	+47,62	120	+88,89
17	-74,60	43	-33,33	69	+7,94	95	+49,21	121	+90,48
18	-73,02	44	-31,75	70	+9,52	96	+50,79	122	+92,06
19	-71,43	45	-30,16	71	+11,11	97	+52,38	123	+93,65
20	-69,84	46	-28,57	72	+12,70	98	+53,97	124	+95,24
21	-68,25	47	-26,98	73	+14,29	99	+55,56	125	+96,83
22	-66,67	48	-25,40	74	+15,87	100	+57,14	126	+98,41
23	-65,08	49	-23,81	75	+17,46	101	+58,73	127	+100,00
24	-63,49	50	-22,22	76	+19,05	102	+60,32		
25	-61,90	51	-20,63	77	+20,63	103	+61,90		

**Note:** None tune shift is applied for calibration constant equal to 64.

## 6.8 TECHNICAL SPECIFICATION

MIDI bus :	fully according to MIDI Manufacturers Association standards
MIDI connectors :	2x DIN 41524 (5 pins / 180°)
Transit data delay MIDI IN → THRU :	max. 1 ms, typ. 0,32 ms
Power supply voltage :	+20 / ±12 V from instrument's power supply unit
Power current consumption:	max. 50 mA from +20V / max. 5 mA from ±12V
Electrical design :	conforms to product specification ČSN EN 60335-1+A55, ČSN EN 60335-2-45, IEC 60065
EMC :	conforms to product specification EN 55013, EN55020
Operating environment :	standard indoor
Range of operating temperature :	+5°C to +40°C
Relative environmental humidity :	up to 85 %
Board dimensions :	75 x 52 mm

## 6.9 WARRANTY CONDITIONS

The equipment is provided with **thirty-months warranty** starting from the date of the equipment take-over by the customer. This date must be specified on warranty list together with dealer's confirmation.

During this period of time, all defects of equipment or its accessories, caused by defective material or faulty manufacturing, will be removed free of charge.

Warranty repair is asserted by the customer against the dealer.

Warranty period is to be extended for the time period, during which the product was under the warranty repair.

The relevant legal regulations take effect in case of cancellation of purchase contract.

The customer will lose the right for free warranty repair, if he will not be able to submit properly filled out warranty list or if the defects of the product had been caused by:

- unavoidable event (natural disaster),
- connecting the device to the incorrect supply voltage,
- inputs or outputs overloading by connecting the signals source or load source with not-corresponding characteristics etc.,
- faulty equipment operation, which is at variance with the instructions referred-to in the operating manual,
- mechanical damage caused by consumer during transportation or usage of equipment,
- unprofessional interference with the equipment or by equipment modification without manufacturer's approval.

## 6.10 IMPORTANT SAFETY INSTRUCTIONS



**CAUTION**  
**RISK OF ELECTRIC SHOCK - DO NOT OPEN**  
**ATTENTION: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR**



The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

### INFORMATION FOR USERS ON DISPOSAL OF OLD EQUIPMENT AND BATTERIES [EUROPEAN UNION ONLY]



Equipment bearing these symbols should not be disposed as general household waste.

You should look for appropriate recycling facilities and systems for the disposal of these products.

Notice: The sign Pb below the symbol for batteries indicates that this battery contains lead.

### WARNING

**FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:**

**WATER AND MOISTURE:** Appliance should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

**POWER SOURCES:** The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

**GROUNDING OR POLARIZATION:** Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

**POWER CORD PROTECTION:** Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

**SERVICING:** To reduce the risk of fire or electric shock, the user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE:** Replace fuse with same type and rating only.

**All documents and support software are available at manufacturer's web pages.**



Vermona Synthesizer MIDI Interface  
Model VS-MIDI, Nr. 8-434, ver. 2.00  
Document: 843420\_manual, rev. 1

Manufacturer: CHD Elektroservis, Czech Republic

www.chd-el.cz      info@chd-el.cz

