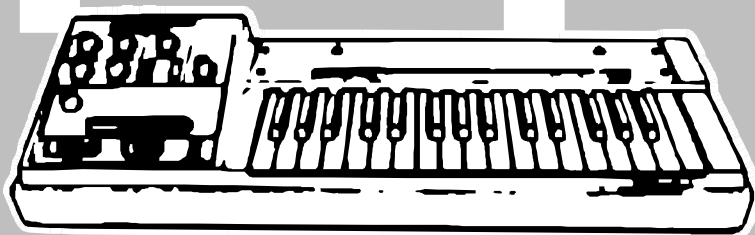


# KM500-KBD

MIDI Interface for  
Korg M500 Micro-Preset Keyboard

Model 8-428  
Version 1.0



Installation Manual



© 2019 CHD Elektroservis



## Contents:

<b>1</b>	<b>GENERAL INFORMATION .....</b>	<b>3</b>
1.1	MIDI INTERFACE KIT PARTS.....	3
<b>2</b>	<b>MIDI INTERFACE INSTALLATION .....</b>	<b>4</b>
2.1	OPEN THE INSTRUMENT.....	4
2.2	HOLES FOR MIDI SOCKETS DRILLING .....	5
2.3	MIDI SOCKETS MOUNTING .....	6
2.4	HOLES FOR BUTTON AND INDICATION LED DRILLING .....	6
2.5	BUTTON AND INDICATION LED MOUNTING .....	7
2.6	POWER SUPPLY CABLE MOUNTING.....	7
2.7	KEYBOARD CONTROL SIGNALS CABLE MOUNTING .....	8
2.8	THE INTERFACE BOARD MOUNTING .....	9
2.9	INTERFACE ADJUSTMENT .....	11
2.10	FINISHING OF THE INSTALLATION.....	12
<b>3</b>	<b>INSTALLATION TIPS .....</b>	<b>14</b>
3.1	USAGE OF MIDI – THRU/OUT OUTPUT .....	14
3.2	ALTERNATIVE PLACEMENT OF MIDI SOCKETS.....	14
3.3	RESET BUTTON AND INDICATION LED .....	14

## 1 GENERAL INFORMATION

KM500-KBD MIDI interface controls VCO and GATE generator of the Korg M500 (Micro-Preset) synthesizer. Simplified block schematics of the interface installation in the instrument shows fig. 1.1.

The interface board looks very similarly for Korg 770, 700S, 900PS and M500 but there are a differences in some components. It is recommended to check if you have the correct model. The instrument model identification label on the interface board (see fig. 1.2) specifies the Korg instrument type: K770 is interface for Korg 770, 700S and 900PS, KM500 is interface for Korg M500 Micro-Preset.

The interface firmware can be revised. Actual version of the firmware is printed on the identification label on the interface's processor (see fig. 1.2). It is also possible to read the actual version of firmware from the interface by MIDI System Exclusive message.

### 1.1 MIDI INTERFACE KIT PARTS

MIDI interface kit contents all necessary parts for installation incl. all support and coupling elements. The delivery also includes both installation and operation manuals in printed form. Please check if the delivery is complete before the installation (see fig. 1.1.1).

The KM500-KBD interface kit delivery contents:

- (1) MIDI Interface board
- (2) Bunched cables of keyboard control signals
- (3) Bunched cables with button and LED
- (4) Bunched cables for power supply
- (5) 2x DIN-5 socket with cable
- (6) Coupling elements (LED holder, supports, self-tapping screws, insulation tube and tightening strips)
- (7) Owner's and Installation manuals in printed form

Figure 1.1 – Connection to instrument circuits

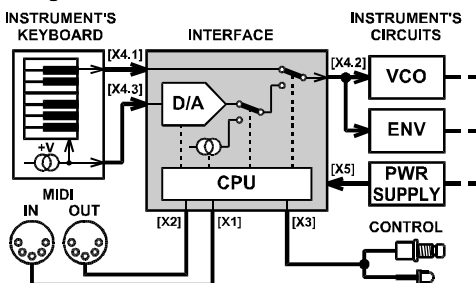


Figure 1.2 – Identification labels

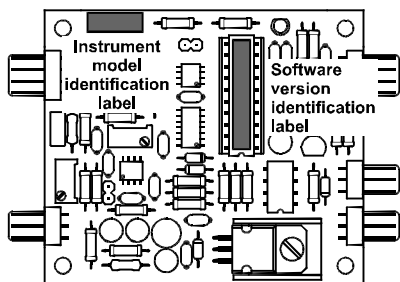
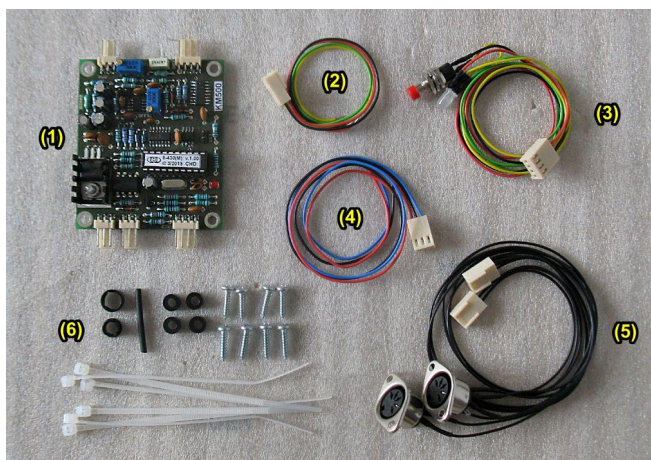


Figure 1.1.1 – Parts of the interface kit



## 2 MIDI INTERFACE INSTALLATION

Mounting the interface in the Korg M500 synthesizer is very easy. If you follow the instructions from this manual, there should be no major problems during the installation. The interface installation procedure is thoroughly described in the following chapters. Please follow these instructions accurately to avoid any damage of the instrument.



**Attention! Disconnect the instrument from the mains prior to the installation. There is a risk of the electric shock!**



**Attention! Observe precautions for handling electrostatic discharge sensitive devices!**



**The producer is not responsible for any eventual mechanical or electrical damage of the Korg instrument caused by the infringement of the described installation procedure or by careless manipulation during the installation of the MIDI interface!**



**It is recommended to calibrate the instrument accordingly to the instructions in service manual of the instrument prior the interface installation. This ensures trouble-free operation of the interface.**

### 2.1 OPEN THE INSTRUMENT

Please keep all original screws and washers removed during the instrument opening procedure described in paragraphs below. They will be used again after the MIDI kit installation is finished.

a) Unscrew six screws on the bottom side of the instrument (fig. 2.1.1). Flip top part of the instrument back (fig. 2.1.2). All instrument's parts and boards needed for the interface installation are now accessible (fig. 2.1.3).

Figure 2.1.1



Figure 2.1.2



Figure 2.1.3

c) Unplug keyboard cable from the "S2" connector on KLM59d board (fig. 2.1.3). Unplugging the cable enables easier manipulation with the instrument during the next installation procedures.



## 2.2 DRILLING HOLES FOR MIDI SOCKETS

The interface has both MIDI input and output. Only MIDI input is necessary for the basic interface operation. MIDI output has not to be installed – see chapter 3.1. Nevertheless, having both MIDI input and output (MIDI-IN and MIDI-THRU/OUT sockets) is more convenient for an easy integration in the more advanced MIDI system.

a) The best place for the MIDI sockets montage is on the rear side of the top wood panel of the instrument (fig. 2.2.1). Alternatively, the sockets can be placed on left side of top panel – see chapter 3.2.

Figure 2.2.1



Figure 2.2.2

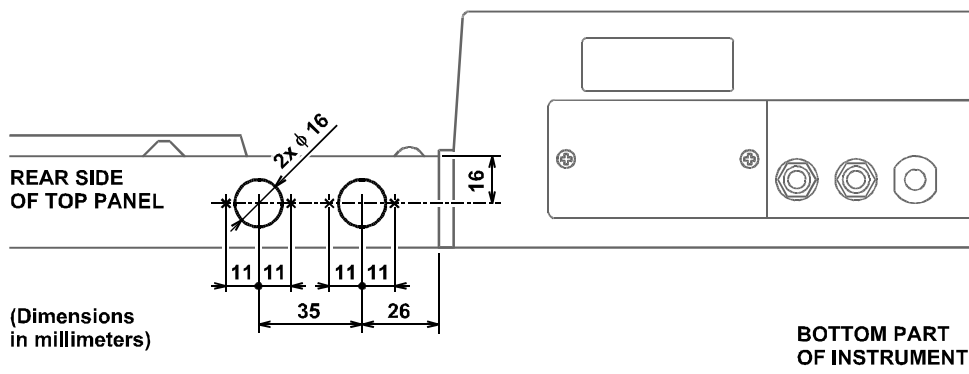


Figure 2.2.3

b) Drill two holes with diameter 16 mm to the rear panel of the instrument as shown on fig. 2.2.2 (all dimensions are in mm). Use special flat drill (V-drill for wood) and **work carefully** so that the cover is not scratched or splitted off and other parts of the instrument are not damaged!

c) Make small holes (labeled by crosses on fig. 2.2.2) for the self-tapping screws by very small drill (diameter cca 1 mm) or by a thick needle (fig. 2.2.3).

c) Clean the edge of the holes with small file or tip of bigger drill after the holes are drilled. Clean all sawdust and raspings from the inside of the instruments, they can cause a malfunction if left inside the instrument!



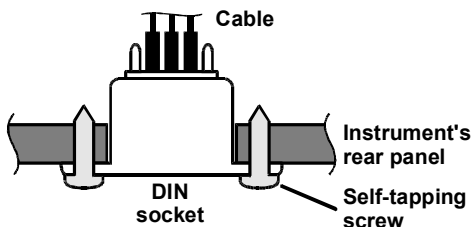
## 2.3 MIDI SOCKETS MOUNTING

- Pull flat connectors of MIDI cables (from the interface accessory) through the holes in the instrument's rear panel from outer side and insert DIN sockets into the holes (pic. 2.3.1). Both MIDI cables are identical and they can be swapped.
- Fix DIN sockets to the panel using four self tapping screws from the interface accessory (pic. 2.3.2).
- It is recommended to label the DIN sockets ("MIDI IN", "MIDI THRU/OUT" for example) with self-adhesive foil glued near the sockets (fig. 2.10.5 in chapter 2.10).

**Figure 2.3.1**



**Figure 2.3.2**



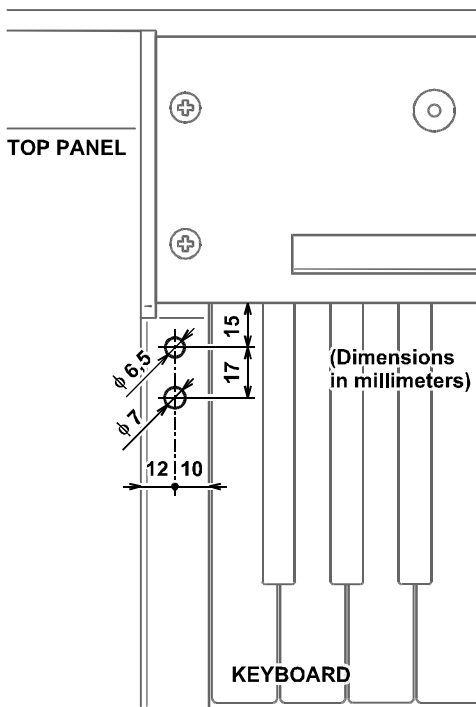
## 2.4 DRILLING HOLES FOR BUTTON AND INDICATION LED

There are two control elements on the interface - button and bi-color LED. They are not necessary for the interface operation, so they need not to be installed (if you prefer to maintain the vintage status of the instrument) – see chapter 3.3. Nevertheless having both of them installed is more convenient for easier device control.

**Figure 2.4.1**



**Figure 2.4.2**



- If you decide to install the LED and the button, the suitable place for them is on small panel on the left side of the instrument's keyboard (fig. 2.4.1). In that case, you have to drill two holes in the panel as shown on fig. 2.4.2 (all dimensions are in mm).



- b) Drill one hole with diameter 7 mm (for RESET button) and one hole with diameter 6,5 mm (for indication LED) to the panel – see pic. 2.4.2. Use sharp drills and **work carefully** so that the panel is not scratched during the drilling!
- c) Clean the edge of all holes with small file or with tip of bigger drill after the holes are drilled. Clean all sawdust and raspings from the inside of the instruments, they can cause a malfunction if left inside the instrument!

## 2.5 BUTTON AND INDICATION LED MOUNTING

- a) Insert LED holder (from the interface accessory) into 6,5 mm hole in the instrument's top panel from the outer side. Pull the lock ring of the LED holder over the supplied LED (fig. 2.5.1).
- b) Insert the LED into the holder (from inner side of the instrument's panel) and fix it by the overthrust of the lock ring on the holder (fig. 2.5.2).

Figure 2.5.1

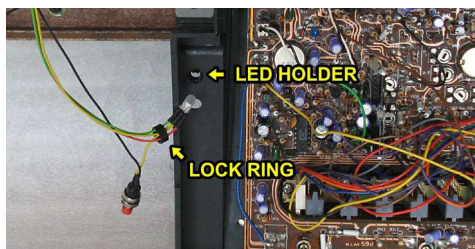
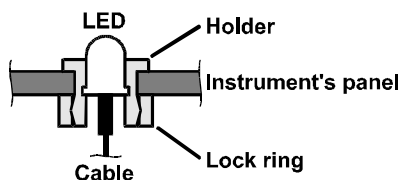


Figure 2.5.2



- c) Insert button into 7 mm hole in the instrument's panel from inner side (fig. 2.5.3).
- d) Fix the button to the panel with the spring washer and nut (fig. 2.5.4).

Figure 2.5.3

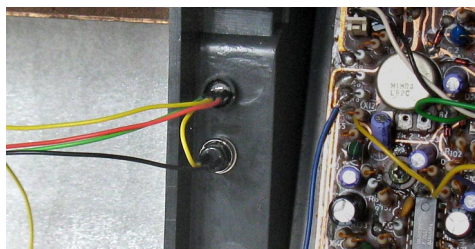
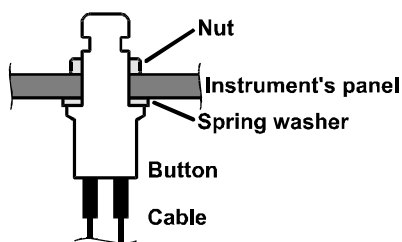


Figure 2.5.4



## 2.6 POWER SUPPLY CABLE MOUNTING

The power supply cable from the interface accessory is fitted with 3-pin flat connector (fig. 2.6.1). Wires outgoing from this connector must be connected (soldered) to leads of IC1 and IC2 on the instrument's KLM59d board (fig. 2.6.2). **Work carefully during next procedures** since the IC1 and IC2 are less accessible.

Figure 2.6.1



- Solder the black wire Nr. 2 "GND" to ground (left pin) of the IC2 (fig. 2.6.3).
- Solder the blue wire Nr. 1 "-12V" to output (right pin) of the IC2 (fig. 2.6.3).
- Solder the red wire Nr. 3 "+12V" to output (upper pin) of the IC1 (fig. 2.6.4).
- Check the soldering quality - if a short connection to the other pins of IC1 / IC2 didn't occur!

Figure 2.6.2

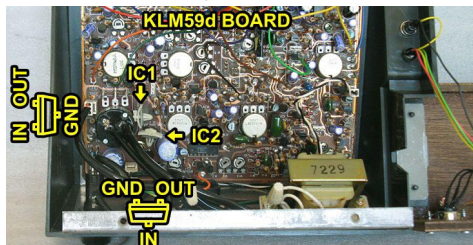


Figure 2.6.3

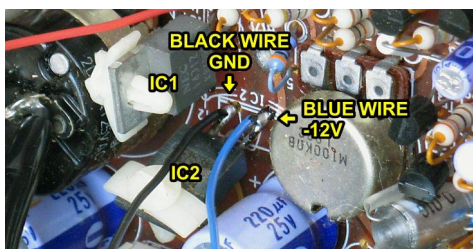
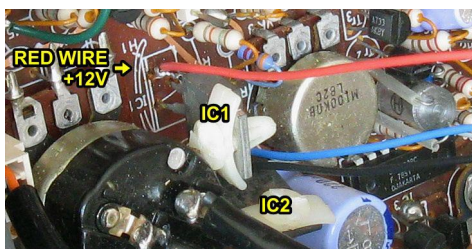


Figure 2.6.4



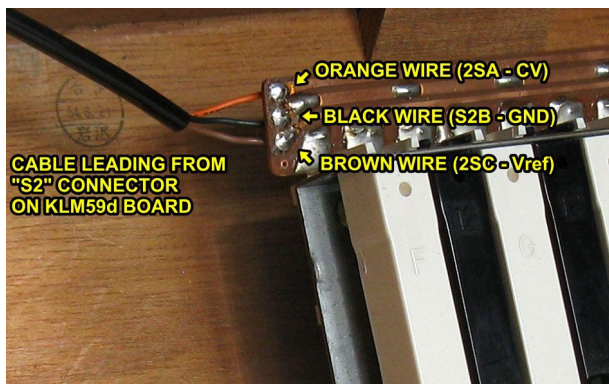
## 2.7 KEYBOARD CONTROL SIGNALS CABLE MOUNTING

The keyboard control signals cable from the interface accessory is fitted with 4-pin flat connector (fig. 2.7.1). Wires outgoing from this connector must be connected to the instrument's keyboard and between the instrument's keyboard and the KLM59d board (fig. 2.7.2 and fig. 1.1 in chapter 1).

Figure 2.7.1



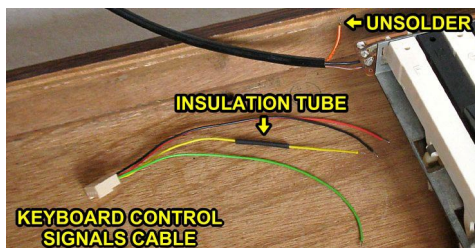
Figure. 2.7.2



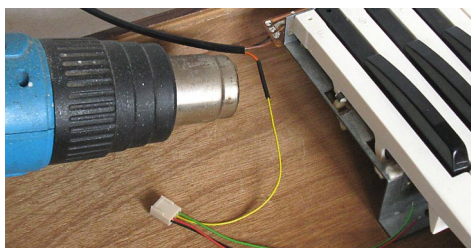


- Unsolder the orange wire (leads from the KLM59d board, signed 2SA) from soldering pad on the instrument's keyboard (fig. 2.7.3).
- Place heat-shrink insulation tube  $\phi$  2 mm (from the interface accessory) on yellow wire Nr. 2 "OUT" of the keyboard control signals cable (fig. 2.7.3).
- Solder the yellow wire to the orange wire freed from the soldering pad on the keyboard. Isolate the connection with the insulation tube and heat it (with a hot-flue pistol for example) until it shrinks tightly to the cables (fig. 2.7.4).

**Figure 2.7.3**

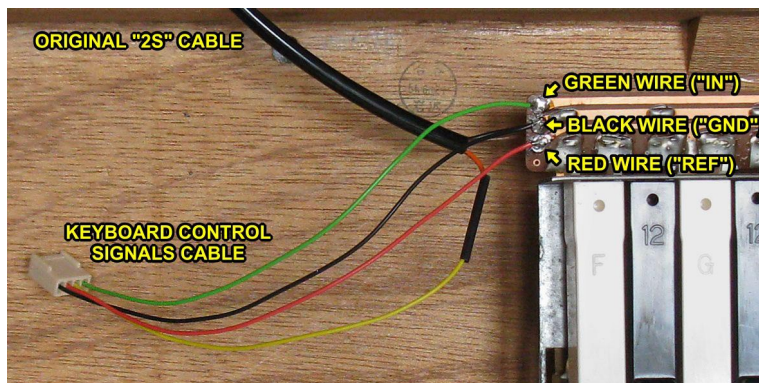


**Figure 2.7.4**



- Solder green wire Nr. 1 "IN" of the interface cable to the freed soldering pad on the instrument's keyboard (fig. 2.7.5).
- Solder black wire Nr. 4 "GND" of the interface cable to pad on the instrument's keyboard where a black wire, (leads from the KLM59d board, signed 2SC) is already soldered (fig. 2.7.5).
- Solder red wire Nr. 3 "REF" of the interface cable to pad on the instrument's keyboard where a brown wire (leads from the KLM59d board, signed 2SB) is already soldered (fig. 2.7.5).

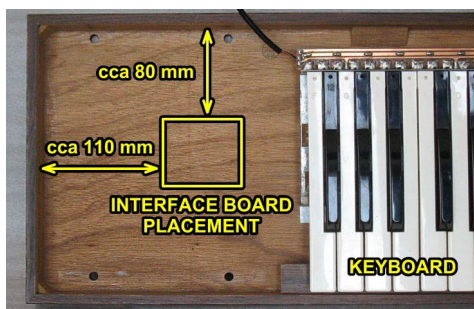
**Figure. 2.7.5**



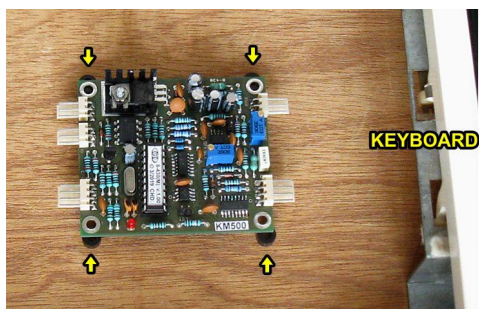
## 2.8 THE INTERFACE BOARD MOUNTING

- The interface board will be placed on the bottom wood cover of the instrument – to the left of the keyboard (fig. 2.8.1).
- Put the interface board to the instrument's bottom plate so that the board side with two connectors X4 ("KBD") and X5 ("PWR") points to the right, towards the keyboard as shown on the figure 2.8.2. Insert four plastic distance supports from the interface accessory under the holes on the interface board.

**Figure 2.8.1**

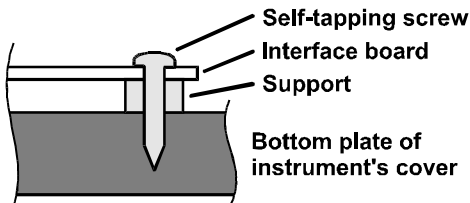


**Figure 2.8.2**

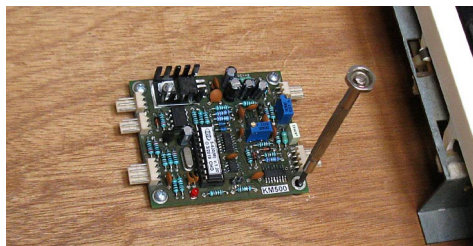


c) Fix the interface board to the bottom plate of the instrument using four self tapping screws from the interface accessory (pic. 2.8.3). Make small holes for the self-tapping screws before - by very small drill (diameter cca 1 mm) or by a thick needle (fig. 2.8.4).

**Pic. 2.8.3**



**Pic. 2.8.4**

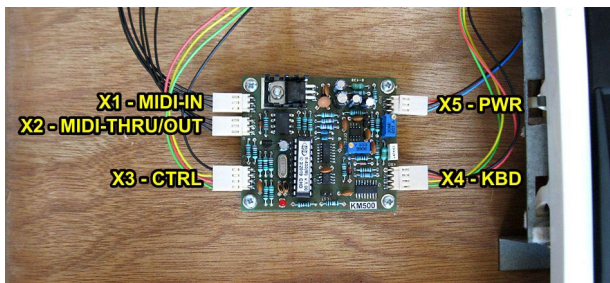


d) Plug the 3-pin connector of the bunched cables lead from the power supply pads (IC1 and IC2) on KLM59d board to X5 ("PWR") plug head on the interface board. Orientation of the connector is given by the connector lock so it cannot be plugged reversely (fig. 2.8.5).

e) Plug 4-pin connector of the bunched cables lead from keyboard to X4 ("KBD") plug head on the interface board. Orientation of the connector is given by the connector lock again (fig. 2.8.5).

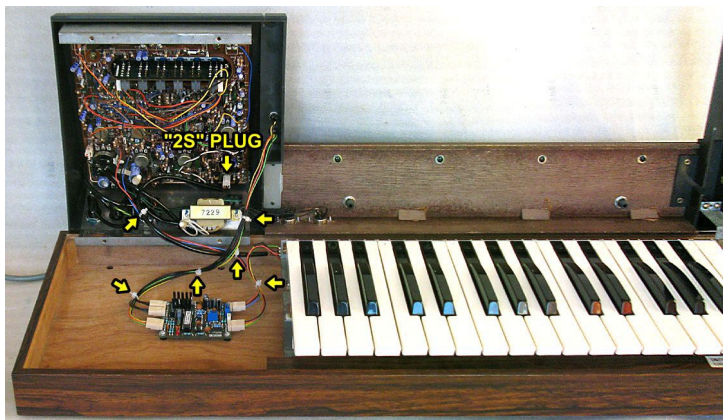
f) Plug two 3-pin connectors of the MIDI cables to X1 ("I") and X2 ("O") plug heads on the interface board. Orientation of the connectors is given by the connector lock again but be sure that the connectors are not exchanged: MIDI input must be plugged to X1 head and MIDI output to X2 head (fig. 2.8.5).

**Figure 2.8.5**



- g) Plug the 4-pin connector of the bunched cables (lead from button and LED mounted on top panel) to X3 ("CTRL") plug head on the interface board. Orientation of the connector is given by the connector lock again (fig. 2.8.5).
- h) Plug original keyboard cable to the "2S" connector on instrument's KLM59d board (return it to its original position - fig. 2.8.6).
- i) Align newly installed cables and fix them together with plastic stripes from the interface accessory (fig. 2.8.6).

**Figure 2.8.6**



## 2.9 INTERFACE ADJUSTMENT

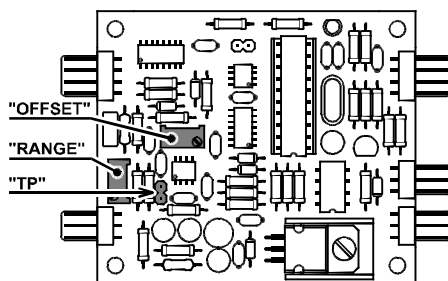
There are two variable resistors on the interface board labeled "OFFSET" and "RANGE" (fig. 2.9.1). They must be adjusted before the interface is used. Adjustment procedure is following:

- Connect MIDI output of your MIDI master keyboard (or PC / sequencer / DAW) to MIDI input of the interface<sup>1</sup>.
- Connect "HIGH" audio output of the instrument to a tuner or to a frequency meter.
- Set all controllers on the instrument's panels to a clear sound without any modulation:

- PITCH knob → to **0** (middle position)
- VIBRATO switch → to **OFF** (middle position)
- REPEAT switch → to **OFF** (middle position)
- TONE rotary selector → to **4'** (second position from top)
- TONE switch selector → to **WOOD** (i.e. FLUTE tone is selected)
- PORTAMENTO switch → to **OFF** (middle position)

Positions of all other controllers on instrument's panel are not significant.

**Figure 2.9.1**



<sup>1</sup> Set transmit MIDI Channel to number 1 on the master keyboard.

d) Plug instrument's power supply cable to a mains socket and switch the instrument on by main switch joined with the POWER/VOLUME knob and turn the knob fully clockwise (to maximum). **Attention - work very carefully during whole adjustment procedure - there is a risk of electric shock!**

e) Now, the interface is in "Stand-by" mode - the interface's indication LED is off. If not, press the "RESET" button of the interface<sup>2</sup>.

f) **Wait a few minutes** to stabilize the temperature of all instrument circuits.

g) Measure the voltage between pins of the "TP" jumper head (fig. 2.9.1) with a quality digital multimeter. It should be zero volts exactly. If it is not, adjust it with "OFFSET" variable resistor on the interface board (fig. 2.9.1).

h) Press the C3 key on the instrument's keyboard (fig. 2.9.2) - indication bi-color LED remains off.

i) Measure the output tone frequency by the tuner (frequency meter). It should be 1047 Hz approx. Remember the measured tone frequency. Then release the C3 key.

j) Press the C3 key on the master keyboard (i.e. send MIDI Note Nr. 84 to the interface) and hold it. The indication LED will light in green.

k) Check the output tone frequency by the tuner (frequency meter) again. It must be the same as the frequency measured in paragraph i). If it is not, adjust it with "RANGE" variable resistor on the interface board (fig. 2.9.1).

l) Release the C3 key on the master keyboard. Switch the instrument off and **disconnect the power supply cable from mains socket.**



Figure 2.9.2

## 2.10 FINISHING OF THE INSTALLATION

Now assembly both parts of the instrument together. It is a reverse procedure than described in chapter 2.1. Use the original screws and do not forget to place the washers to their original places.

a) Place the top part of the instrument back to the bottom wood plate – to its original position (fig. 2.10.1).

b) Fix both parts of the instrument together with six original screws and washers (fig. 2.10.2).

Figure 2.10.1



Figure 2.10.2



The installation of the MIDI interface kit is now finished and the Korg M500 instrument is prepared for MIDI communication.

**Please read carefully user manual of the interface before usage of modified instrument.**

<sup>2</sup> It is supposed that the interface is in "Factory Reset" status before the adjustment procedure. If it is not, send the **F0 00 20 21 7F 54 50 03 7F 5A F7 [hex]** SysEx message to the interface first.



Figure 2.10.3

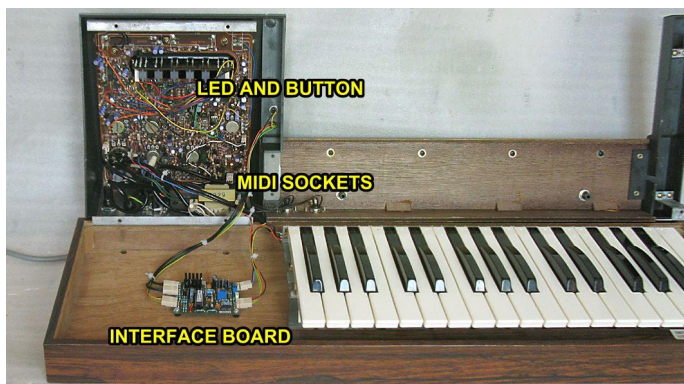


Figure 2.10.4



Figure 2.10.5

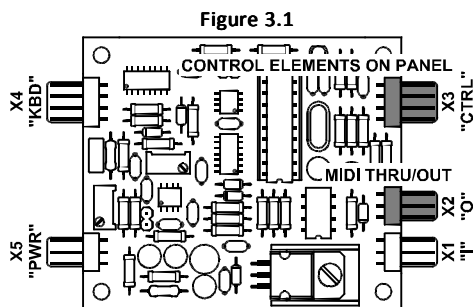




## 3 INSTALLATION TIPS

### 3.1 USAGE OF MIDI – THRU/OUT OUTPUT

KM500-KBD interface has both MIDI input and output. However, only MIDI input is necessary for basic operation of the interface (i.e controlling the instrument by MIDI commands). MIDI THRU/OUT output connector needs not to be installed at all. If you don't require transfer of MIDI data to another MIDI devices (THRU function ) or reverse communication of the interface with host system (OUT function). In such case, X2 connector (labeled "O") on the interface board will remain unused (see pic. 3.1).



### 3.2 ALTERNATIVE PLACEMENT OF MIDI SOCKETS

Except of recommended method of the MIDI sockets installation described in chapter 2.2, another suitable place for the MIDI sockets placement is on the left side of the top plastic panel (fig. 3.2).

If you do not want to mechanically damage the rear panel of the instrument (you prefer to maintain the vintage status of the instrument), take out the MIDI cable(s) through a slot on the instrument cover and replace DIN socket(s) with a cable type.

Figure 3.2



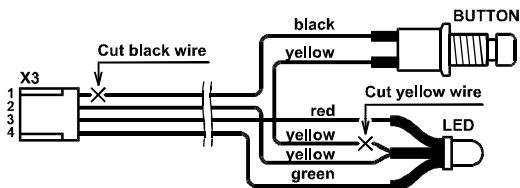
### 3.3 RESET BUTTON AND INDICATION LED

Installation of the reset button and indication LED isn't necessary as well. You don't need to install this bunched cables if you don't want to damage the instrument's panel by drilling. In such case, X3 connector (labeled "CTRL") will remain unused (see fig. 3.1).

It is also possible to install only the indication LED on instrument's panel. In such case, disconnect the button from bunched cables (cut-off yellow and black wires as shown on fig. 3.3).

If the button is not installed, the interface operation is unaffected. The only limitation is that the reset of the interface can be done only by turning the instrument off and on or by MIDI commands sent to the interface (see user manual of the interface).

Figure 3.3





---

**This manual in PDF form is available at manufacturer's web pages.**

---



KORG M500 Micropreset MIDI Interface  
Model KM500-KBD, Nr. 8-428, ver. 1.00  
Document: 842810\_instal

Manufacturer: CHD Elektroservis, Czech Republic

[www.chd-el.cz](http://www.chd-el.cz)      [info@chd-el.cz](mailto:info@chd-el.cz)

