

Vermona ER9 MIDI Interface

User and Installation Guide

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Introduction

ER9 MIDI interface allows connecting the drum machine Vermona ER9 with MIDI devices. It provides triggering the individual ER9 percussions by a MIDI keyboard or sequencer and allows MIDI clock synchronization. The original functionality is still maintained.

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1 List of Components

Before installation, please check that the kit contains all parts listed below.

1. 1x printed circuit board (PCB) ER9 MIDI interface
2. 1x 4-pin connector wired with switch and MIDI connector
3. 1x 9-pin connector with cable
4. 1x 3-pin connector with cable
5. 4x distant spacers
6. 1x JACK connector 6.3 mm
7. Others: 3x silicone tubes, 2x 3mm screws

2 Before Installation

Installation of ER9 MIDI interface is easy if you follow exactly the installation procedure described in this guide. You need to be equipped with basic electrotechnical, soldering and manual skills.

For the installation you will need: a soldering station, colophony for soldering, solder tin, hot-air pistol, screwdriver, drilling machine, auger dia 10 mm, 6.5 mm, isopropyl alcohol.

⚠ Before opening the ER9 cover, disconnect power plug from power socket otherwise you risk electric shock!

⚠ The manufacturer is not responsible for damages caused by infringing described procedure or by careless manipulation during installation procedure!

3 Installation

3.1 ER9 Module Disassembling

⚠ Before opening the ER9 cover, disconnect power plug from power socket otherwise you risk electric shock!

For ER9 cover opening unscrew two screws in the rear panel of the ER9 module and move up the cover according to figure 1.

3.2 Assembling Connectors and Switch

1. Disassemble and desolder the old audio connector (5-pin DIN connector). Instead of the old DIN connector will be mounted the MIDI input of the MIDI interface.
2. Cover ER9 electronics with a plastic foil before drilling the rear panel as in figure 2.

by



Figure 1: ER9 module disassembling



Figure 2: Covering electronics before drilling

3. Sign a point 140 mm from the left side and 15 mm from above of the rear panel according to figure 3. Use a center punch for better accuracy. Drill a hole with diameter 10mm for JACK 6.3 mm audio connector. Firstly, drill with a smaller auger and then with 10 mm.



Figure 3: Mounting hole for audio JACK 6.3 mm connector

4. By the same way as in the previous step drill a hole for the switch with diameter 6.5 mm. The center is 85 mm from the right side and 15 mm from above of the rear panel as depicted in figure 4.



Figure 4: Mounting hole for the switch

5. Solder audio output cable to JACK 6.3 mm connector according to figure 5. The signal wire (thin isolated wire) must be soldered to the tip of JACK connector as you can see in figure 5.

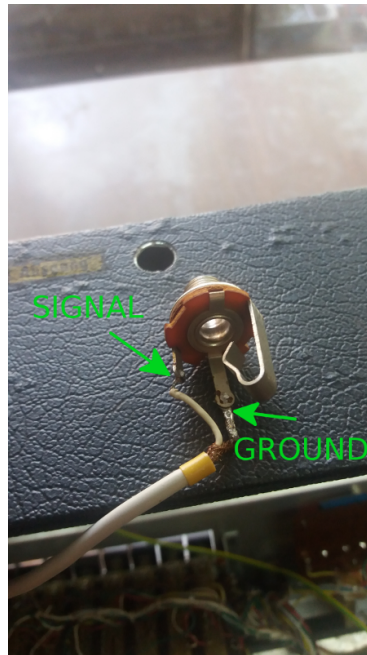


Figure 5: Soldering of the JACK 6.3 mm audio connector

6. Before installation of the connectors and switch is a good idea to cut off all turnings in the drilled holes. And then carefully clean all fragments of metal inside in ER9 module!
7. Mount all connectors into drilled mounting holes. Mount MIDI connector instead of the old audio DIN connector using 3 mm screws from behind of the rear panel. The assembled rear panel shows figure 6.



Figure 6: The assembled rear panel

3.3 Soldering of 9-pin Connector

The 9-pin connector with flat cable is a part of the ER9 MIDI kit. This connector is used to trigger ER9 drum generators. These generators are placed on PCBs R6-R9, figure 7. Disconnect each PCB from the socket before soldering.

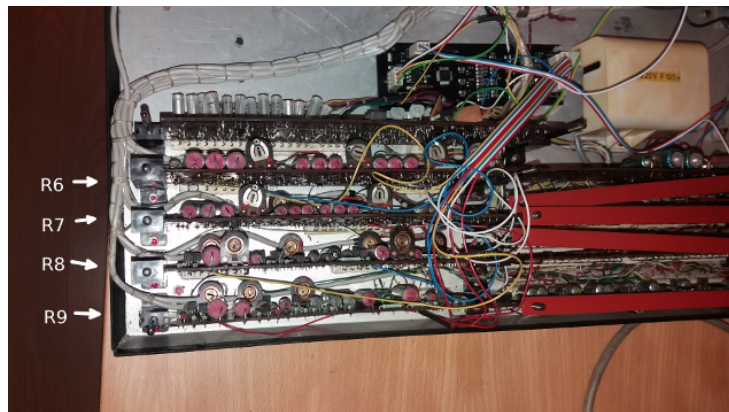


Figure 7: PCB R6-R9

Wiring of 9-pin connector shows figure 8.

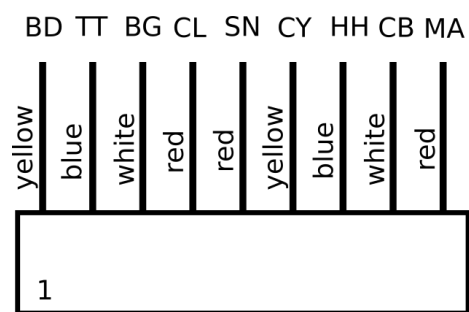


Figure 8: Wiring of 9-pin connector

Solder the first three wires of the 9-pin connectors as follows: pin1 - Bass Drum (BD, yellow wire), pin2 - Tom Tom (TT, blue wire), and pin3 - Bongo (BG, white wire) to PCB R6 according to figure 9.

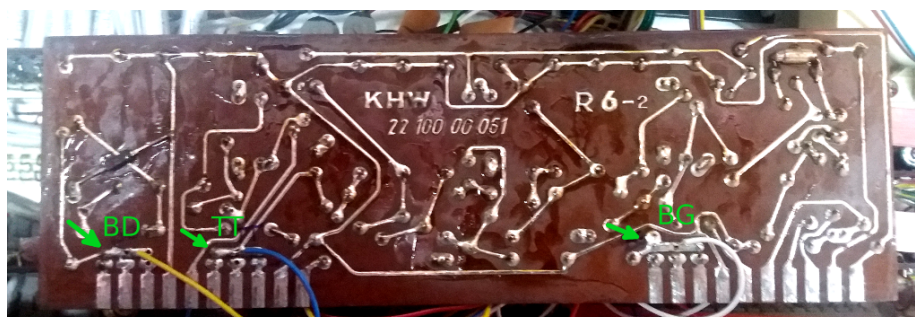


Figure 9: BD, TT, BG

Solder pin 8 - Cow Bell (CB, white wire) and pin 4 - Claves (CL, red wire) to PCB R7 according to figure 10.

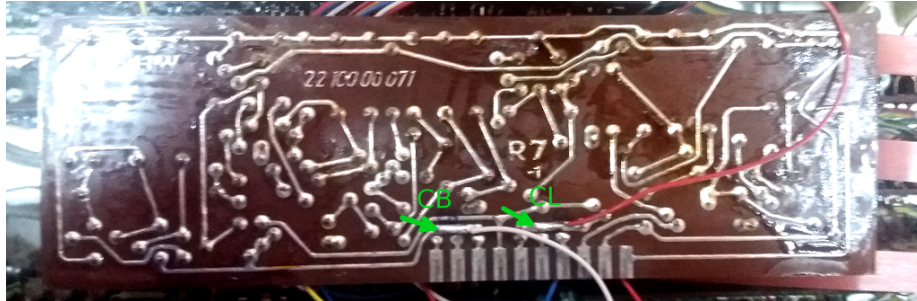


Figure 10: CB, CL

Solder pin 6 - Cymbal (CY, yellow wire) and pin 7 - Hi Hat (HH, blue wire) to PCB R8 according to figure 11.

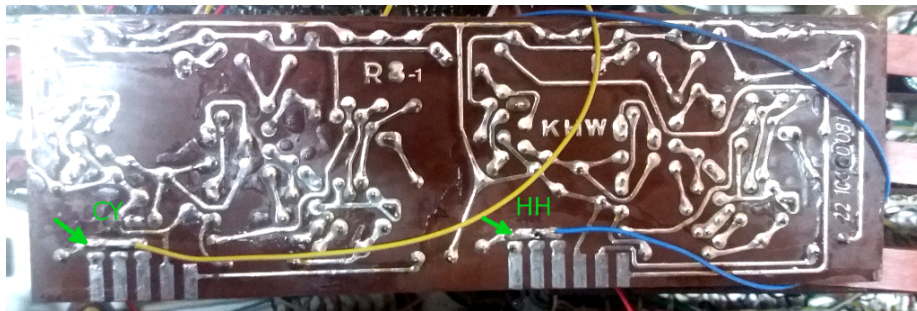


Figure 11: CY, HH

Solder pin 5 - Snare (SN, red wire) and pin 9 - Maracas (MA, red wire) to PCB R9 according to figure 12.

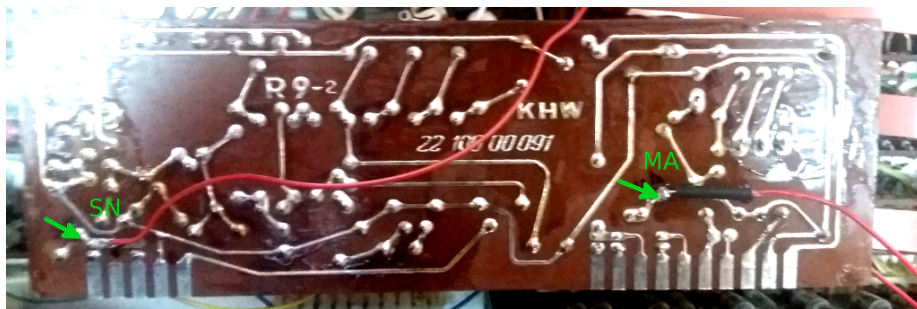


Figure 12: SN, MA

3.4 Wiring of MIDI and Synchronization Cables

Wires for MIDI synchronization are located at 4-pin connector J2. The MIDI input connector is already mounted in the rear panel. Wires J2-1 and J2-2 are soldered to the switch which is also mounted in the rear panel. Free wires that lead from the switch have to be soldered to PCB R12. The switch wiring is depicted in figure 13. Please follow steps below.

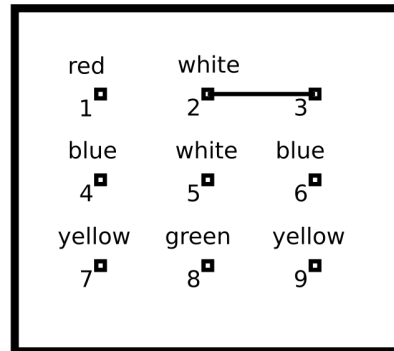


Figure 13: Switch wiring

1. Disconnect PCB R12 from socket. PCB R12 is located before PCB R6. Desolder one side of resistor R6 and R4 according figure 14. Arrows in figure 14 points to the side of both resistors which have to be desoldered.

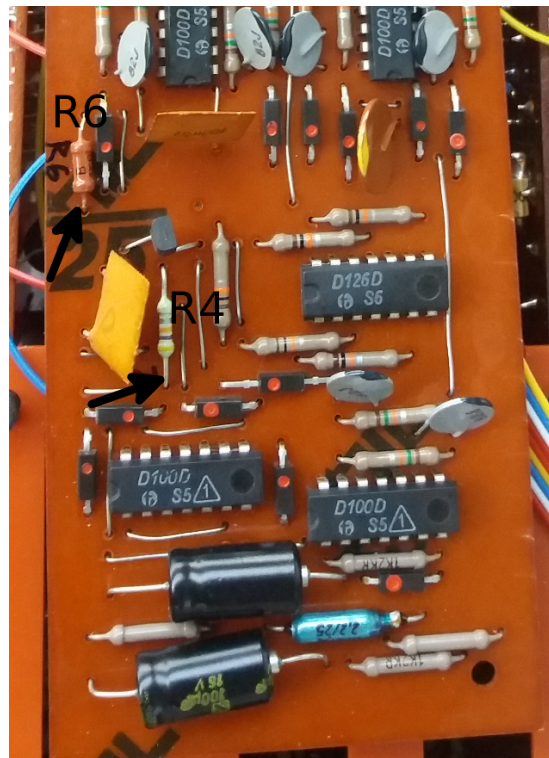


Figure 14: Desoldering one side of R4 and R6

2. Put one plastic tube on white wire (pin 5) of the switch and solder this white wire to free side of the resistor R6. Solder green wire of the switch (pin 8) to PCB R12 instead of the desoldered side of the resistor R6. PCB R12 after soldering, desoldering shows figure 15. Note: PCB R12 in figures 14 and 15 are from different ER9 modules. Therefore you can see minor differences. However, the location of R4 and R6 are the same.
3. Put one plastic tube on blue wire (pin 6) of the switch and solder this blue wire to free side of the resistor R4. Solder the yellow wire of the switch (pin 9) to PCB R12 instead of the desoldered side of the resistor R4. PCB R12 after soldering, desoldering shows figure 15. Note: PCB R12 in figures 14 and 15 are from different ER9 modules. Therefore you can see minor differences. However, the location of R4 and R6 are the same.

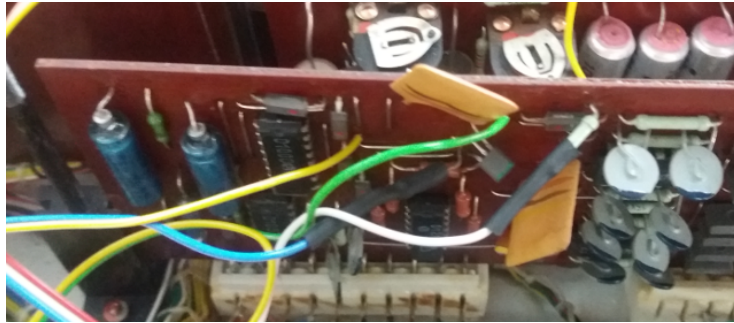


Figure 15: Detail PCB R12 after soldering wires from the switch

4. Desolder wire from pin 28 of socket PCB R12. Location of the pin 28 shows figure 16.

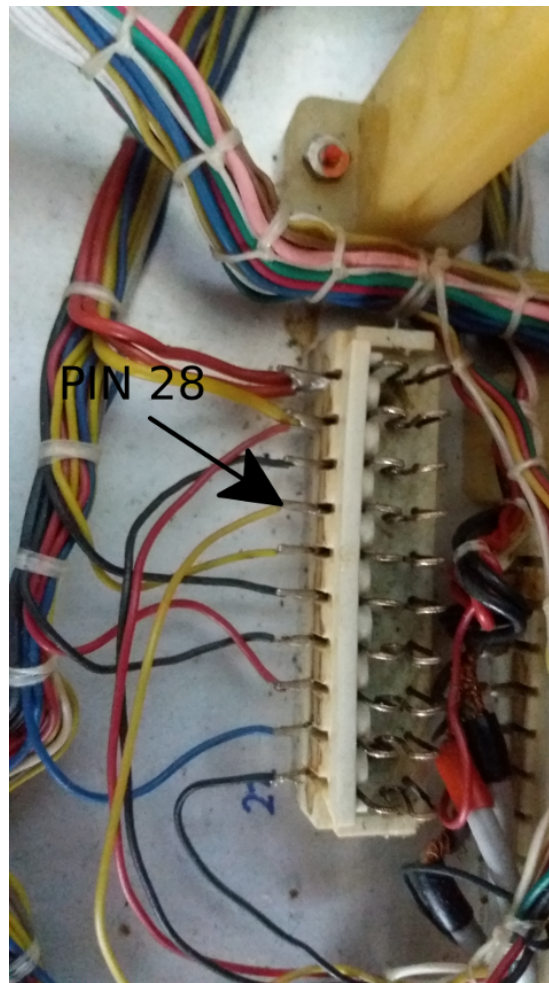


Figure 16: Location of pin 28 of socket PCB R12

5. Put one plastic tube on the desoldered wire from pin 28 in the previous step and solder this wire together with yellow wire (pin 7) of the switch. Solder blue wire (pin 4) to the free pin 28 of socket PCB R12. Detail is shown in figure 17.

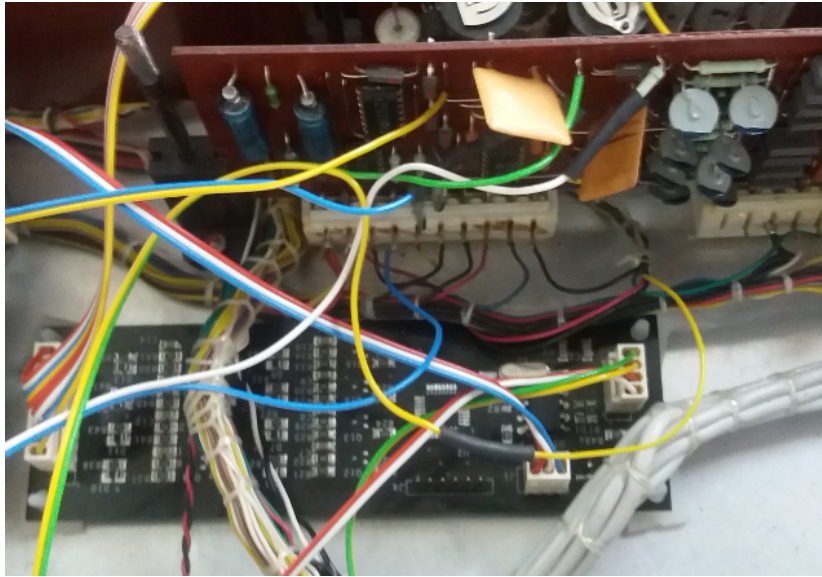


Figure 17: Detail from the step 5

6. Move all the plastic tubes at the place of soldering and heat them by a hot-air pistol to a temperature higher than 120 degrees of Celsius.

3.5 Connecting Power to ER9 MIDI Interface

⚠ Be careful when you solder power wires! Power voltages must be connected correctly otherwise the ER9 MIDI interface will be damaged!

ER9 MIDI interface needs voltage +5 VDC for microcontroller and approximately +20 VDC for analog circuitry. The voltage +20 VDC is stabilized to +12 VDC on the MIDI interface board. These voltages are connected by 3-pin J1 connector which is part of the kit. Wiring of J1 shows figure 18.

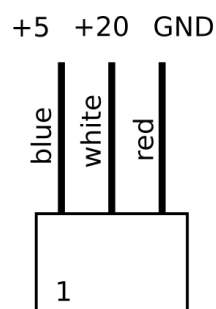


Figure 18: Wiring of the connector J1

Solder pin 3 (red wire) of J1 with the black wire on pin 7 of socket PCB R13. PCB R13 is located at the front of the ER9 power transformer. Solder pin 1 (blue wire) of J1 with yellow wire on pin 5 of socket PCB R13. Detail is shown in figure 19.

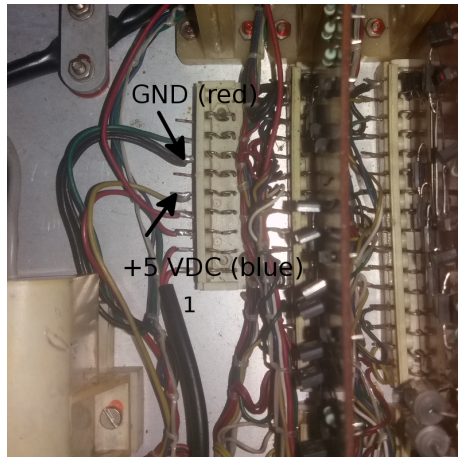


Figure 19: Detail of connecting +5 VDC a GND

Solder pin 2 of J1 (white wire) to PCB R13 according to figure 20.

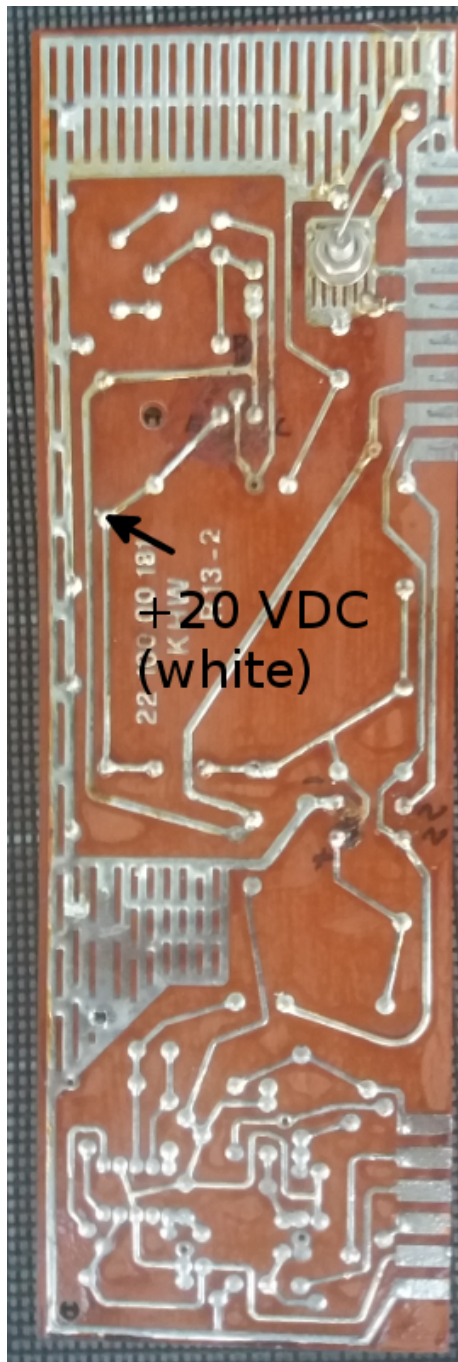


Figure 20: Connecting +20 VDC

3.6 Installation of the ER9 MIDI Interface Board

Place the interface board in the middle inside of ER9 next to power transformer according to figure 21.

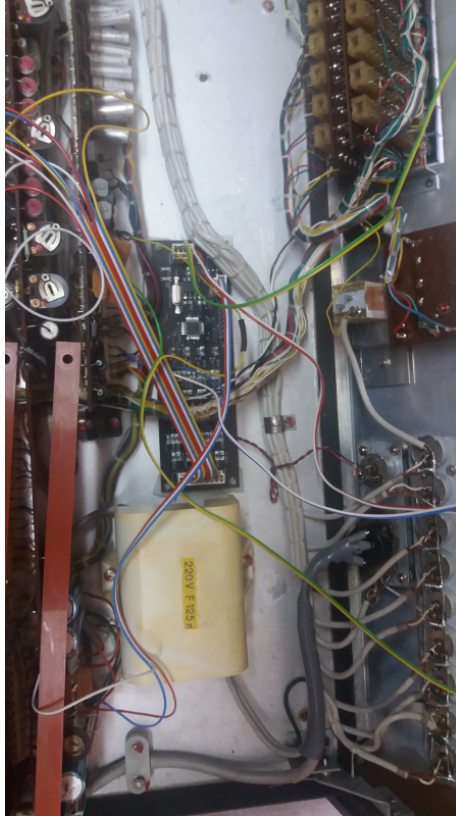


Figure 21: Placing of the ER9 MIDI interface board

Use distance sleeves for mounting interface board. The distance sleeves are part of the interface kit. At first, clean place where the board will be mounted by isopropyl alcohol. Then click the distance sleeves into holes in the corners of the interface board. Remove the foil and attach the interface board.

After mounting of the interface board connect the connectors J1, J2, and J3. The connector J4 is unconnected, it serves for programming purposes.

Now close the ER9 cover and mount screws at the rear panel. After that, you can plug the ER9 into the power socket.

4 User Manual

The ER9 MIDI interface has two modes. The first is triggering drum generators of ER9 by a MIDI keyboard or a sequencer. The second is MIDI clock synchronization with MIDI devices which are able to send MIDI clock signal (DAW, sequences, etc.). MIDI channel of ER9 MIDI interface is set by default to channel 9. It is not possible to change the MIDI channel by the user.

4.1 Triggering Individual Drum Generators of ER9 Using MIDI Notes

Connect the MIDI connector of ER9 with a MIDI keyboard, DAW, or sequencer. Set MIDI channel to 9. Switch the rear switch into a position where beat indicator on the front panel of ER 9 is constantly out of light. Press the START button on ER9 front panel into ON position. Now you can trigger individual drum generation using MIDI. The MIDI notes numbers which trigger particular drum generators are stated in the following table.

Drum Generator	Note	MIDI note number
Bass Drum	C1	36
Snare Drum	E1	40
Cymbal	F1	41
Hi Hat	F#1	42
Tom Tom	A1	45
Cow Bell	G#2	56
Bongo	C#3	61
Maracas	A#3	70
Claves	D#4	75

4.2 MIDI Clock Synchronization

The ER9 MIDI interface allows synchronizing internal time clock of ER9 with MIDI devices that provides MIDI clock signal. These devices are for example a DAW (Sonar, Cubase, etc.), MIDI sequencers, synthesizers and so on.

For MIDI clock synchronization turn on the switch on the rear panel of ER9 into a position where the red lights signaling beat or internal oscillator of ER9 are out of light. Now is the ER9 interface ready to receive a MIDI clock signal. Connect using a MIDI cable the MIDI connector at the rear panel of ER9 with a MIDI output connector of an external MIDI device (master device) which allows MIDI clock synchronization. Make sure that MIDI clock signal sending is enabled in the master device. Switch the START button on the front panel of ER9 into ON position. Now is ER9 ready to receive a MIDI clock signal from a master device? After stop MIDI clock in an external device, you need to start it again from the first bar of a pattern. The reason is that master device sends a short start MIDI message in order to reset internal oscillator in ER9 which start from the beginning. In the MIDI synchronization mode, you can switch patterns and mute instruments of ER9 as you like.

4.3 Normal ER9 mode

For normal ER9 mode, turn off the switch on the rear panel of ER9. After that, the ER9 works normally as before the installation of the MIDI kit.