# LABO ⋆ K EFFECTS

## MOUNTING INSTRUCTIONS FOR THE EQ81 EQUALIZER
## REPLICA OF THE NEVE 8108 EQUALIZER
## IN 500 FORMAT ( ISS6 )

# INTRODUCTION

The EQ 81 is a replica of the equalizer section of the 34136 console section of the NEVE 8108 series
The EQ 81 equalizer forms a fully variable (parametric) four-band.
The high and low frequency bands can be switched from a peak characteristic to a shelve characteristic.
Throughout its design, the **EQ 81** was compared to the original 8108 equalizer. The differences in the values of some components between the diagram in the maintenance manual and the module itself have been considered.
A step-by-step comparison of the listening was carried out.
Various capacitor tests were carried out until a perfect sound similarity was obtained.
Particularity:
The switch (**CH**) on the **EQ 81** module allows the EQ part of the module to be inserted into the **PRE 81** preamp path after the filters and before the fader exactly as in the original 8108 channel. This function is available when using a link cable or when the modules are used with a **Labo K Effects K551X** format rack.

The **EQ 81** module can be powered in +/-16V (API 500 format) or +/-18V in a 51X or K551X format rack. Regulators on the module convert the +/-24V available on 51X and K551X format to +/-18V.

This module is compatible with API500, 51X, VPR, and K551X formats.

**Optional accessories**

| | |
|---|---|
| **Labo★K Effects K551X rack**<br><br>Rack system in K551x format with modular backplanes powered by a ribbon cable.<br><br>**Pre 81 by Labo★K Effects**<br><br>Replica of Neve 8108 Pream |  <br>  |

# KIT OVERVIEW

- 2 Double-sided PCBs with metallized holes
- Passive components (resistors, chokes and capacitors).
- Active components (Diodes, Transistors, integrated circuits)
- *Regulators and radiators (option +/-18V)*
- IC sockets
- Switches and potentiometers
- IDC connectors and ribbon cable
- Front panel
- Knobs

This module can be powered in 2 ways.

In 500 format, i. e. +/-16V. It will be necessary to implant the +16 and -16 resistors

It is also possible to supply it with +/-18V (as in the console).
For this purpose, it is necessary to have a rack in K551X, 51X or VPR format
These racks have a +/- 24V power supply which will be used to obtain the +/- 18V
The +18 and -18 resistors must be installed.

NOTE :

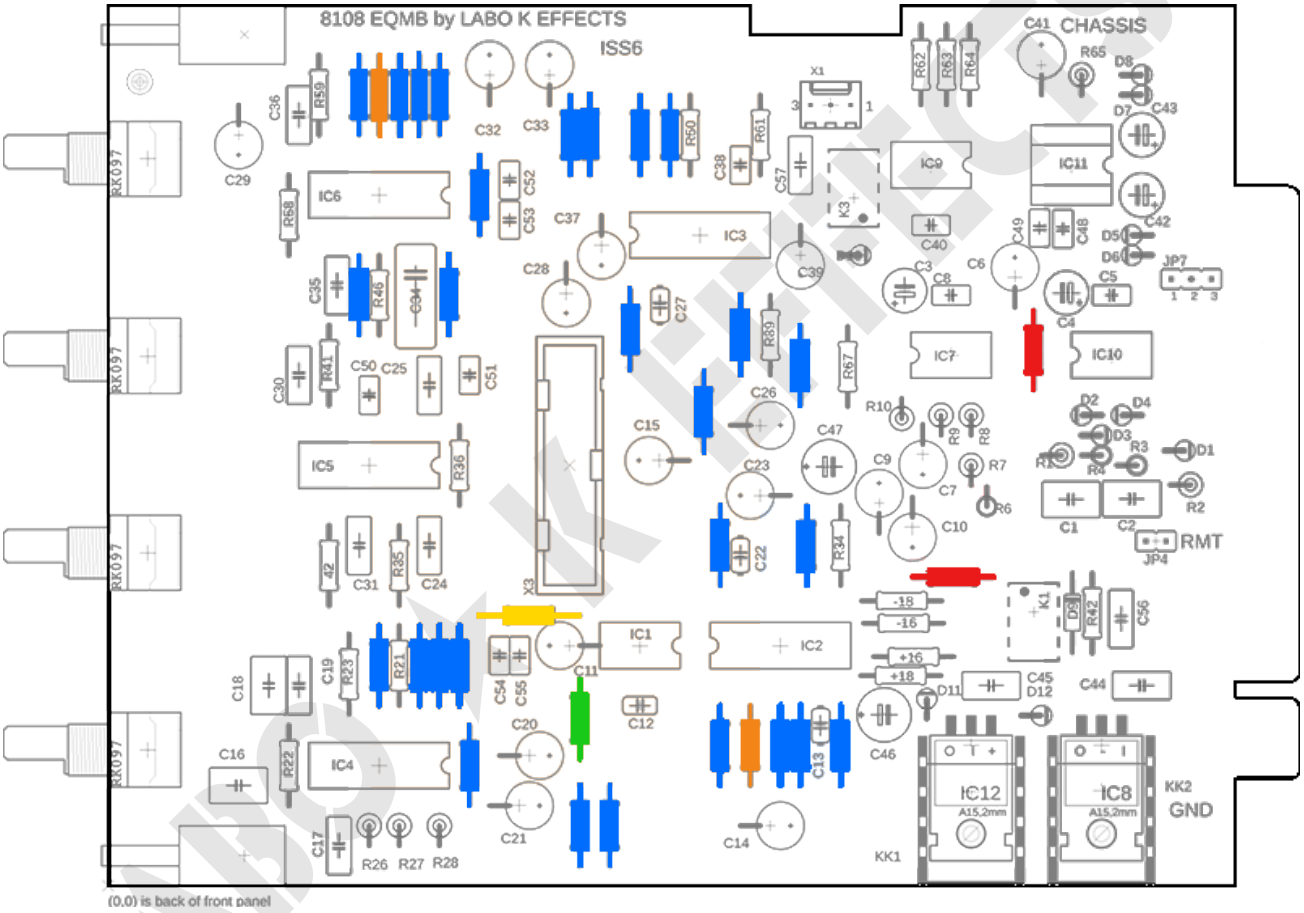
2 Jumpers allow to configure the equalizer according to the desired use.

See the chapter dedicated to the configuration of the module below.

**It is recommended to read the entire manual before starting the construction of the module**

# MOUNTING INSTRUCTIONS MB 01

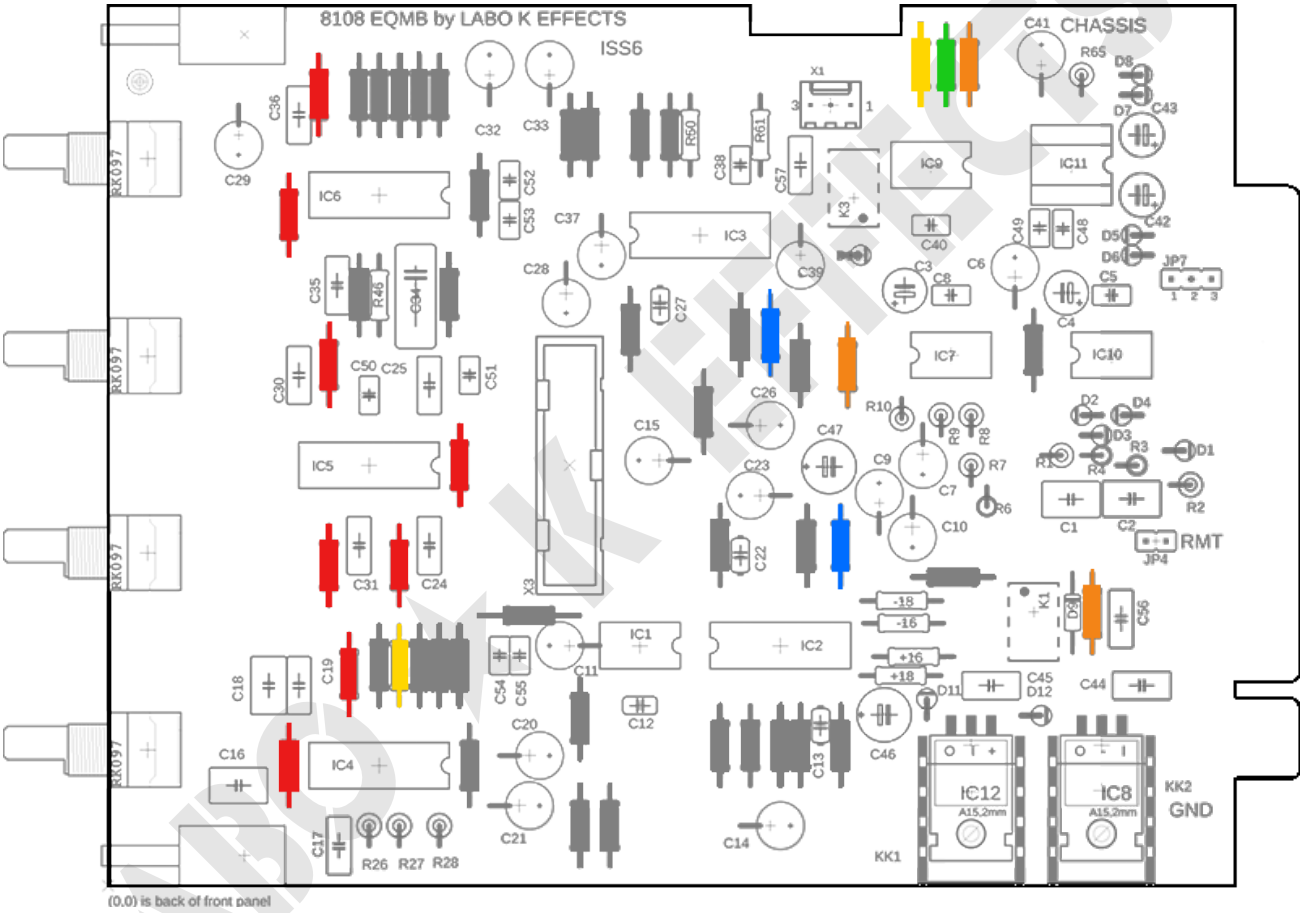
| | | |
|---|---|---|
| | Resistor 16K | R5, 11 |
| | Resistor 100K | R12 |
| | Resistors 9K1 | R13,14,15,17,18,19,20,24,25,29,30,31,32,37,38 40,43,44,45,47,48,51,52,53,54,55,56,60 |
| | Resistors 1K8 | R16, 57 |
| | Resistor 0R | R33 |




| Note | | |
|---|---|---|
| 16K |  | 2 |
| 100K |  | 1 |
| 9K1 |  | 28 |
| 1K8 |  | 1 |
| 0R |  | 1 |

# MOUNTING INSTRUCTIONS MB 02

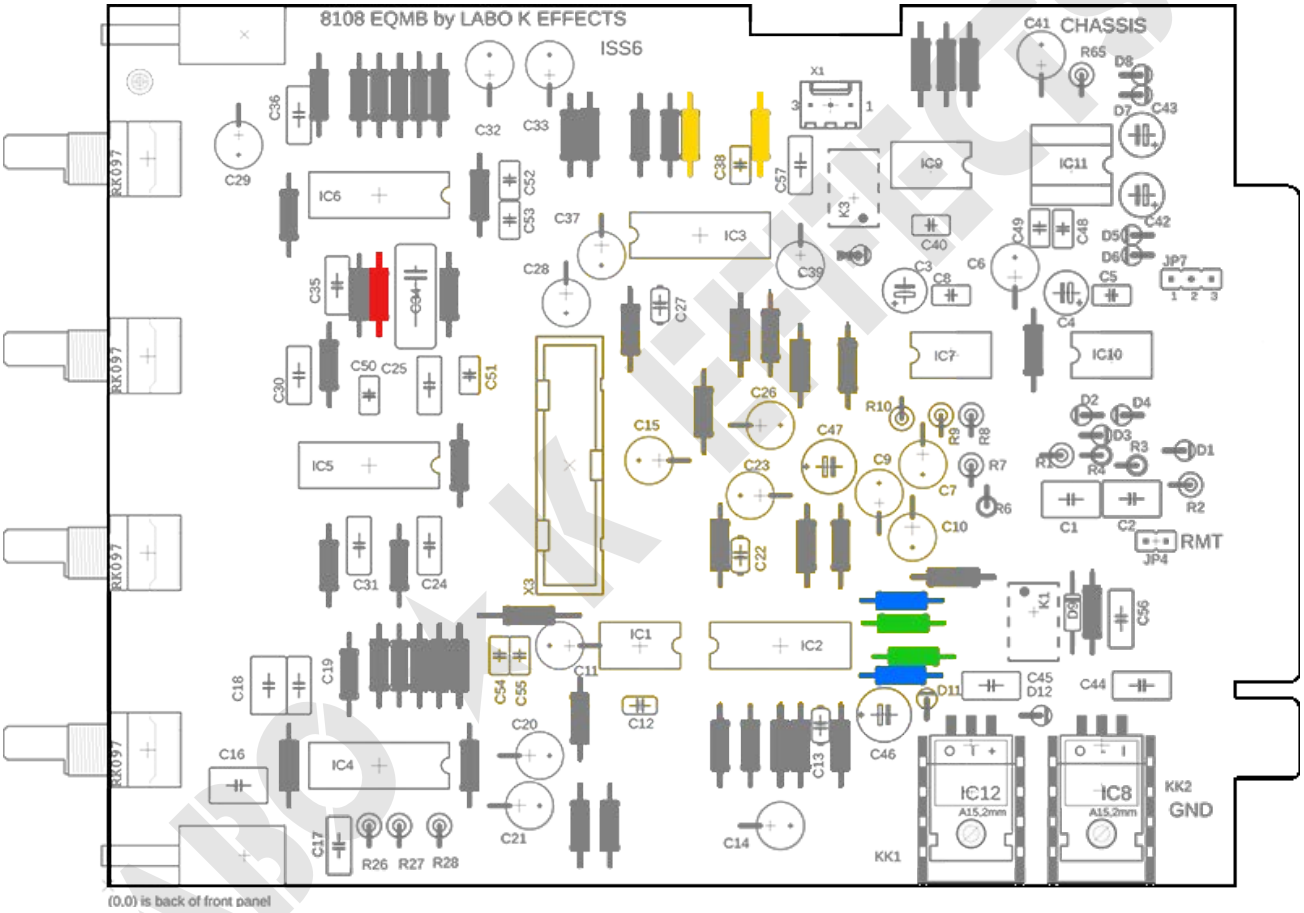
| | | |
|---|---|---|
| | Resistors 1K | R22, 23, 35, 36, 41, 42, 58, 59 |
| | Resistor 1K2 | R63 |
| | Resistor 3K9 | R34, 39 |
| | Resistor 680R | R42, 64, 67 |
| | Resistors 18K | R21, 62 |




| Note | | |
|---|---|---|
| 1K |  | 8 |
| 1K2 |  | 1 |
| 3K9 |  | 2 |
| 680R |  | 3 |
| 18K |  | 2 |

# MOUNTING INSTRUCTIONS MB 03

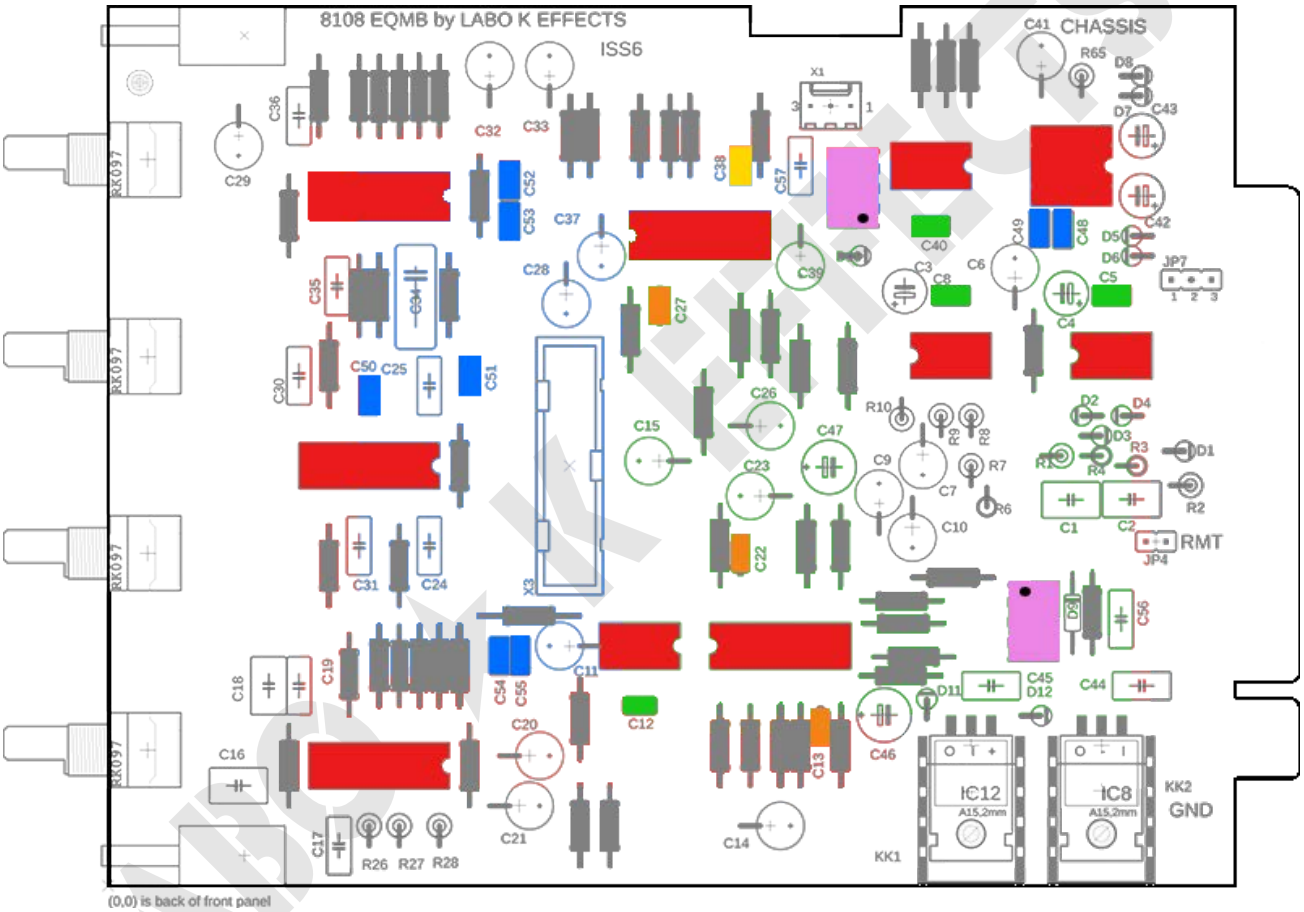
| | | |
|---|---|---|
| | Resistor 2K2 | R46 |
| | Resistors 1R | -16, +16 (Version 16V) |
| | Resistors 1R | -18, +18 (Version 18V) |
| | Resistor 3K9 | R39 |
| | Resistors 56K | R50, R61 |




| Note | The +/18V power supply is only possible in 51X, K551X, VPR format | |
|---|---|---|
| 2K2 |  | 1 |
| 1R |  | 2 |
| 56K |  | 2 |

# MOUNTING INSTRUCTIONS MB 04

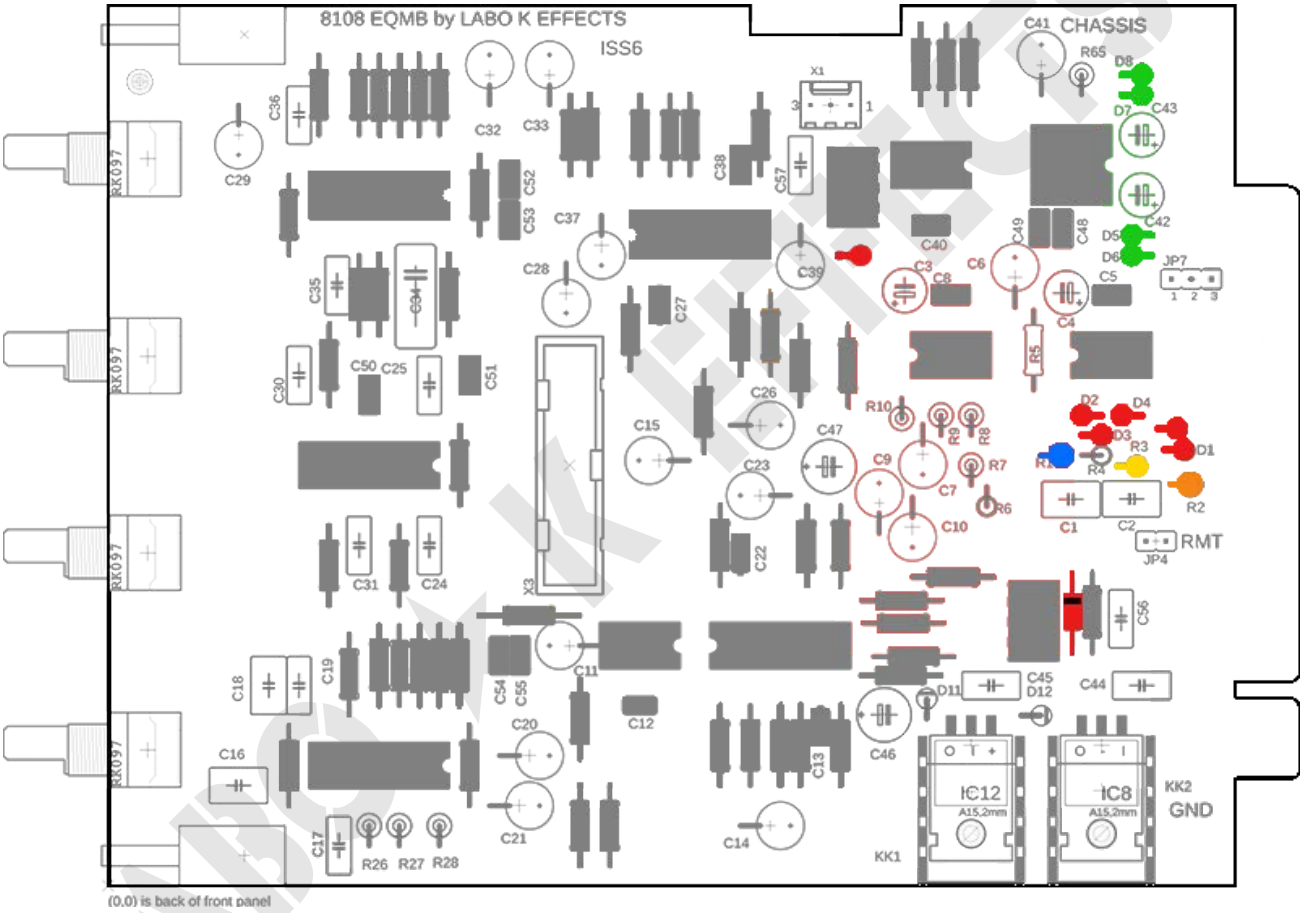
| | | |
|---|---|---|
| | IC Sockets | |
| | C Ceramics 22pF | C8, C5, C12, C40 |
| | C Ceramics 100n | C48, C49, C50, C51, C52, C53, C54, C55 |
| | C Ceramics 68pF | C13, C22, C27 |
| | C Ceramics 10pF | C38 |
| | 12V relays | K1, K3 |



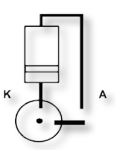

| Note | Respect Relays ans Sockets positon | |
|---|---|---|
| 22p | 22 | 4 |
| 100n | 104 | 8 |
| 68p | 680 | 3 |
| 10p | 10J | 1 |

# MOUNTING INSTRUCTIONS MB 05

| | | |
|---|---|---|
| | Diodes 1N4148 | D1, D2, D3, D4, D9, D13 |
| | Diodes 1N4002 | D5, D6, D7, D8 |
| | Resistor 12K4 | R1 |
| | Resistor 7K68 | R2 |
| | Resistor 3K92 | R3 |

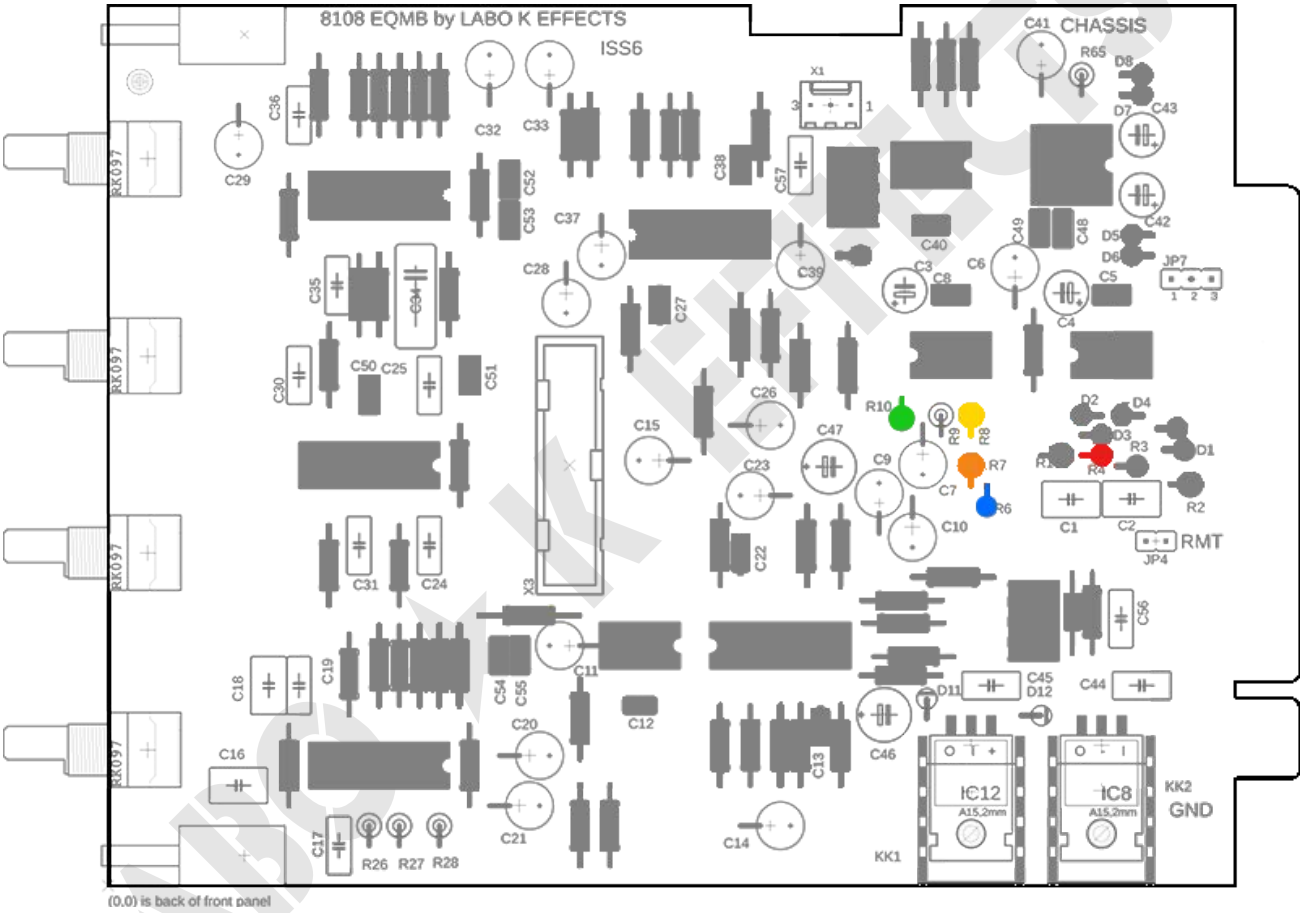



| Note | The diodes and Resistors are installed vertically | |
|---|---|---|
| 12K4 | | 1 |
| 7K68 | | 1 |
| 3K92 | | 1 |
| | Diode implementation | |



# MOUNTING INSTRUCTIONS MB 06

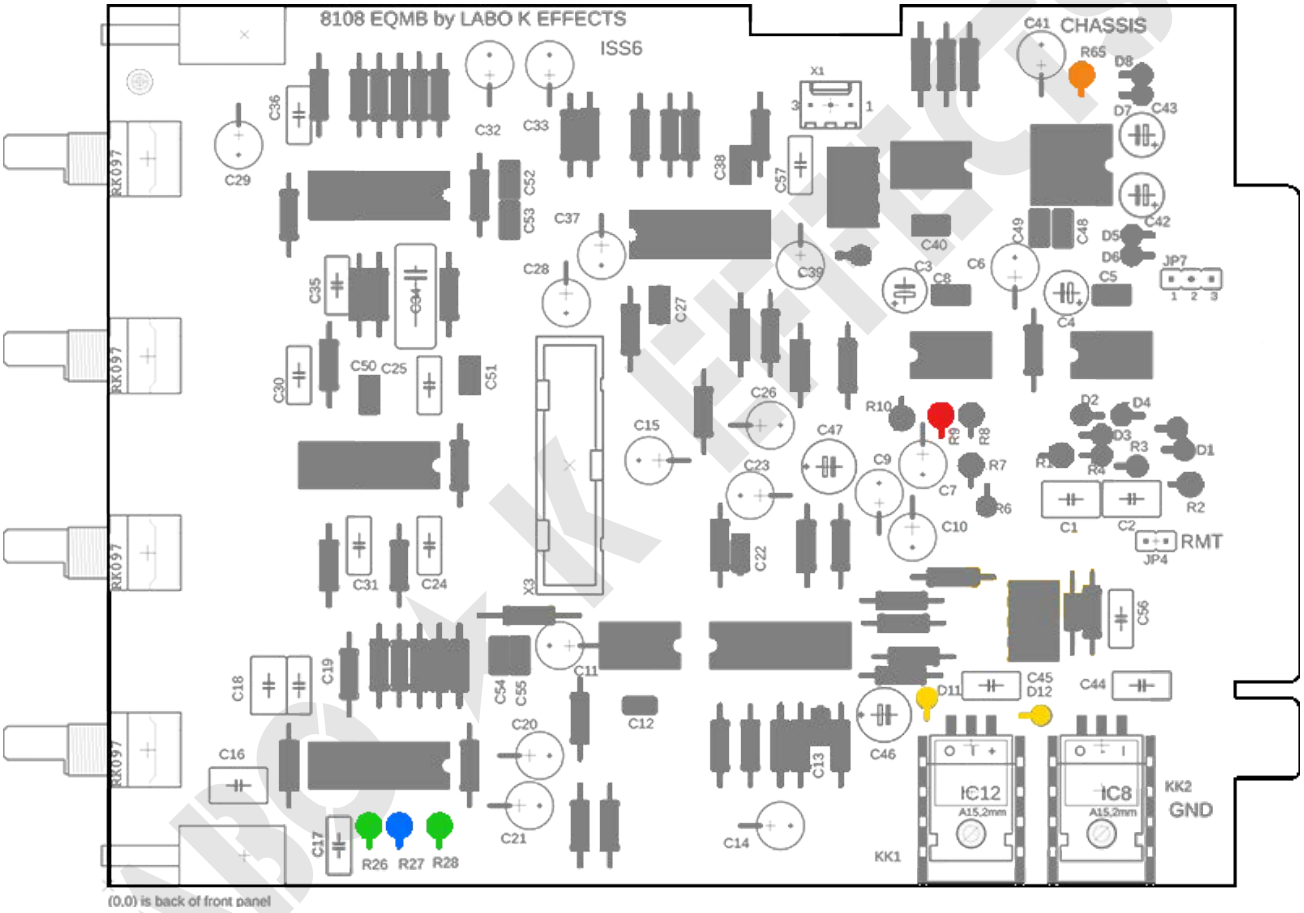
| | | |
|---|---|---|
| | Resistor 2K43 | R4 |
| | Resistors 16K | R5, R10 |
| | Resistor 1K1 | R6 |
| | Resistor 1K6 | R7 |
| | Resistor 390K | R8 |




| Note | The resistors are installed vertically | |
|---|---|---|
| 2K43 | | 1 |
| 16K | | 1 |
| 1K1 | | 1 |
| 1K6 | | 1 |
| 390K | | 1 |

# MOUNTING INSTRUCTIONS MB 07

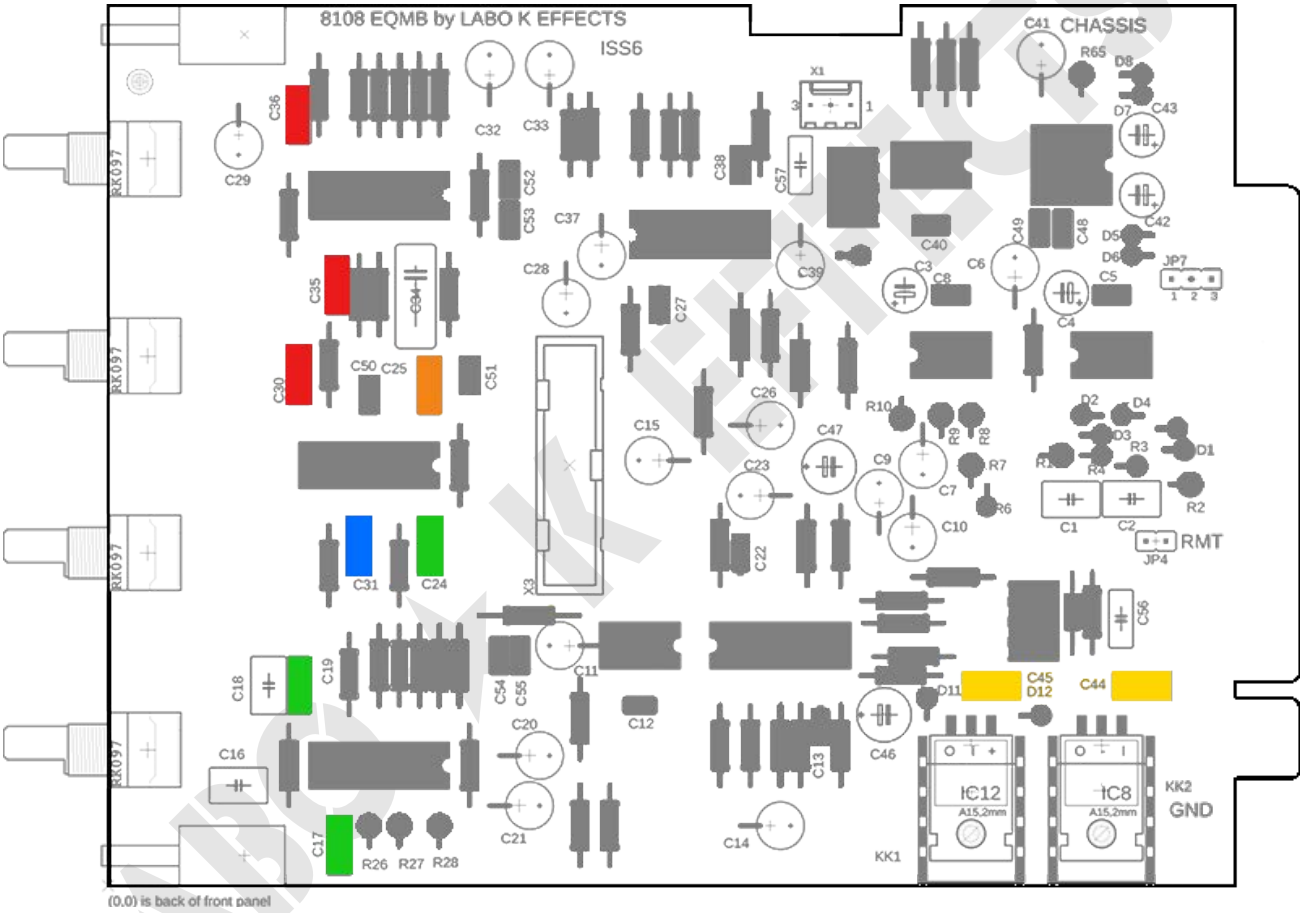
| | | |
|---|---|---|
| | Resistor 7K5 | R9 |
| | Resistors 9K1 | R26, R28 |
| | Resistor 2K2 | R27 |
| | Resistor 100K | R65 |
| | Diodes 1N4002 | **(18V Version)** |




| Note | The Resistors are installed vertically | |
|---|---|---|
| | Observe the polarity of diodes | |
| 7K5 |  | 1 |
| 9K1 |  | 2 |
| 2K2 |  | 1 |
| 100K |  | 1 |

# MOUNTING INSTRUCTIONS MB 08

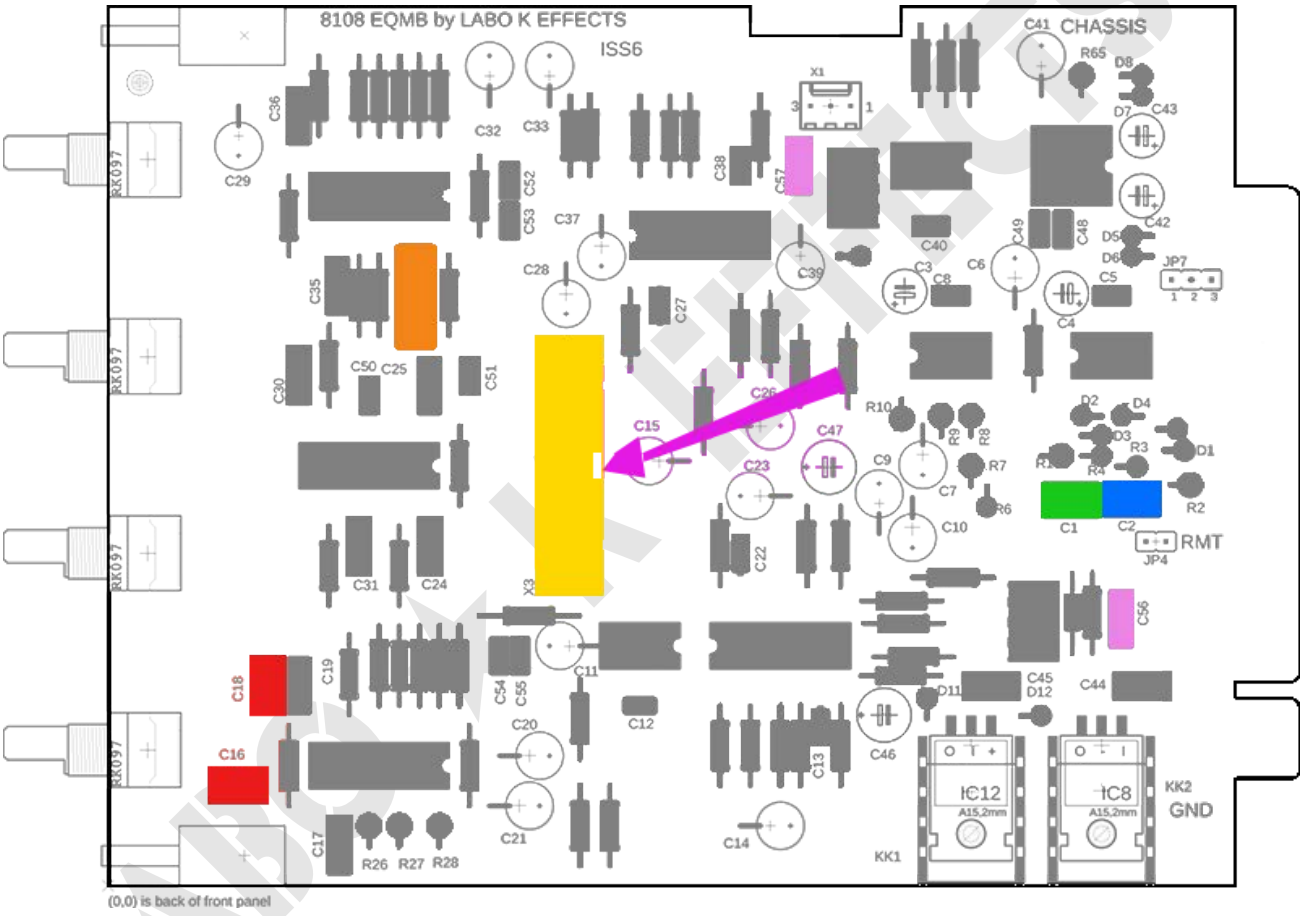
| | | |
|---|---|---|
| | C 10nF Film | C30, C35, C36 |
| | C 33nF Film | C17, C19, C24 |
| | C 39nF Film | C31 |
| | C 150nF Film | C25 |
| | C 220nF Film | **C45, C46 (18V version)** |




| Note | | |
|---|---|---|
| | | |
| | | |
| | | |

# MOUNTING INSTRUCTIONS MB 09

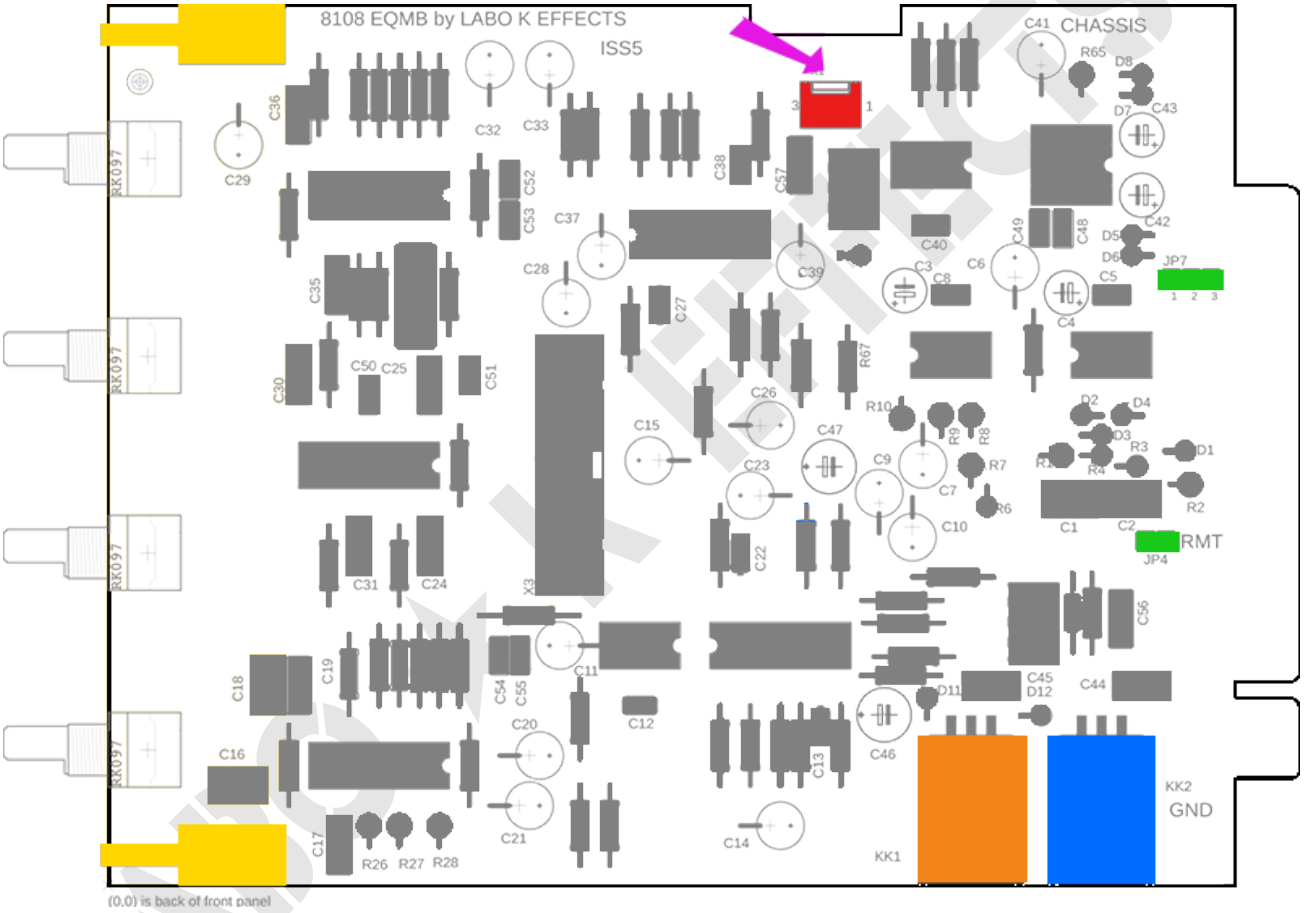
| | | |
|---|---|---|
| | C Film 470nF | C16, C18 |
| | C Film WIMA 68pF | C1 |
| | C Film WIMA 47pF | C2 |
| | C Sufflex 470pF | C34 |
| | C Film 100nF | C56, C57 |
| | IDC 20 Conector | X3 |




| | | |
|---|---|---|
| Note | | |
| | Observe the orientation of the IDC connector | |
| | | |
| | | |

# MOUNTING INSTRUCTIONS MB 10

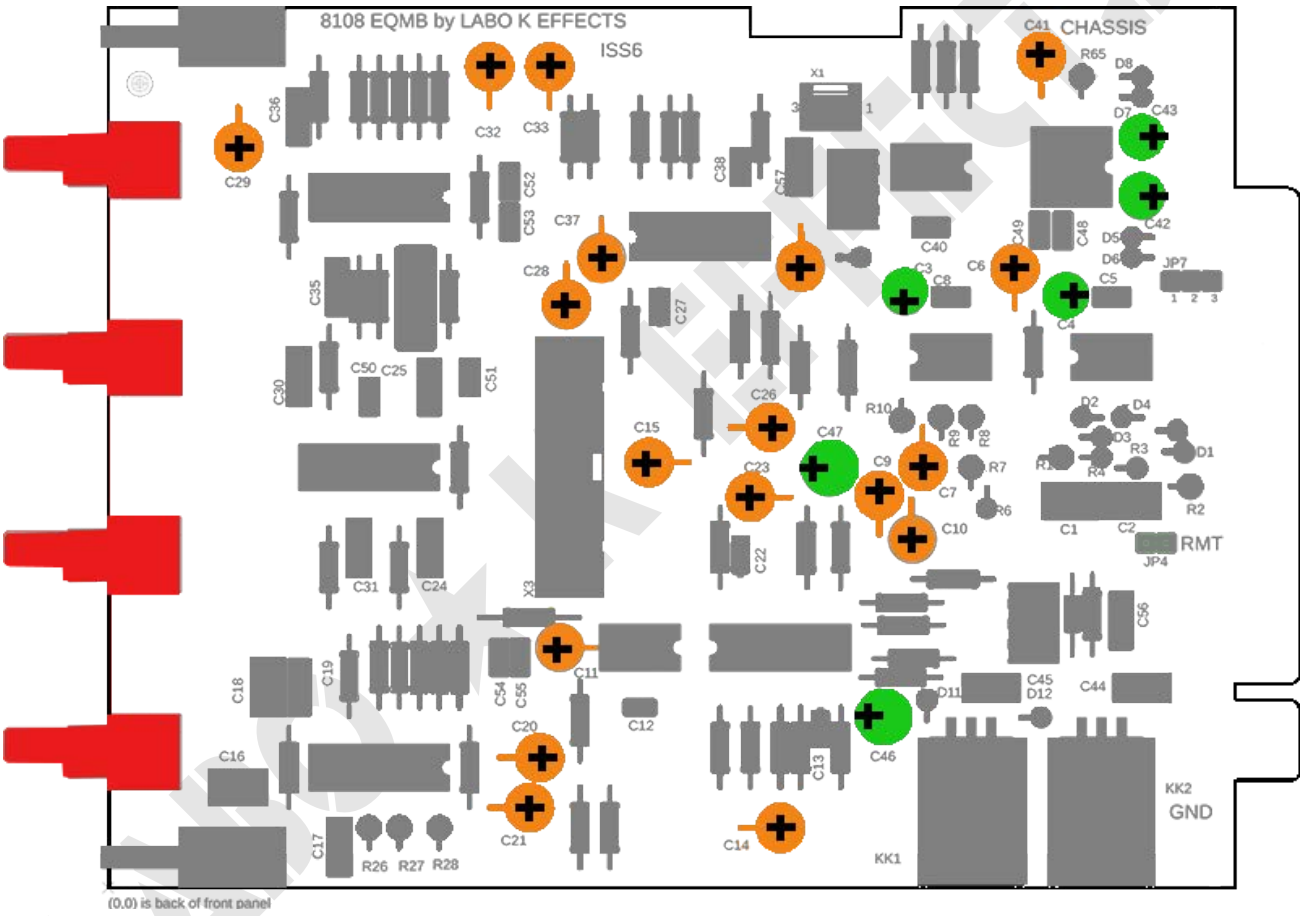
| | | |
|---|---|---|
| | Header10 Conn. | 3-position Molex connector |
| | Header 2 pins | JP4, JP7 |
| | Regulator 7818 | **IC8 (+radiator) 18V version** |
| | Regulator 7918 | **IC12 (+radiator) 18V version** |
| | Switches ALPS | |



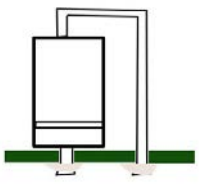

| | |
|---|---|
| Note | Observe the orientation of the Molex connector. |
| | Do not solder all the pins of the switches |
| | Place the front panel and solder the pins once the axes are aligned |
| | |

# MOUNTING INSTRUCTIONS MB 11

| | | |
|---|---|---|
| | POT ALPS 2x10KA | |
| | C Pol 22uF/25V | C3, 4, 42, 43, 46, 47 |
| | C Pol100uF/10V | C6, 7, 9, 10, 11, 14, 15, 20, 21, 23, 26, 28, 29, 32, 33, 37, 39, 41 |

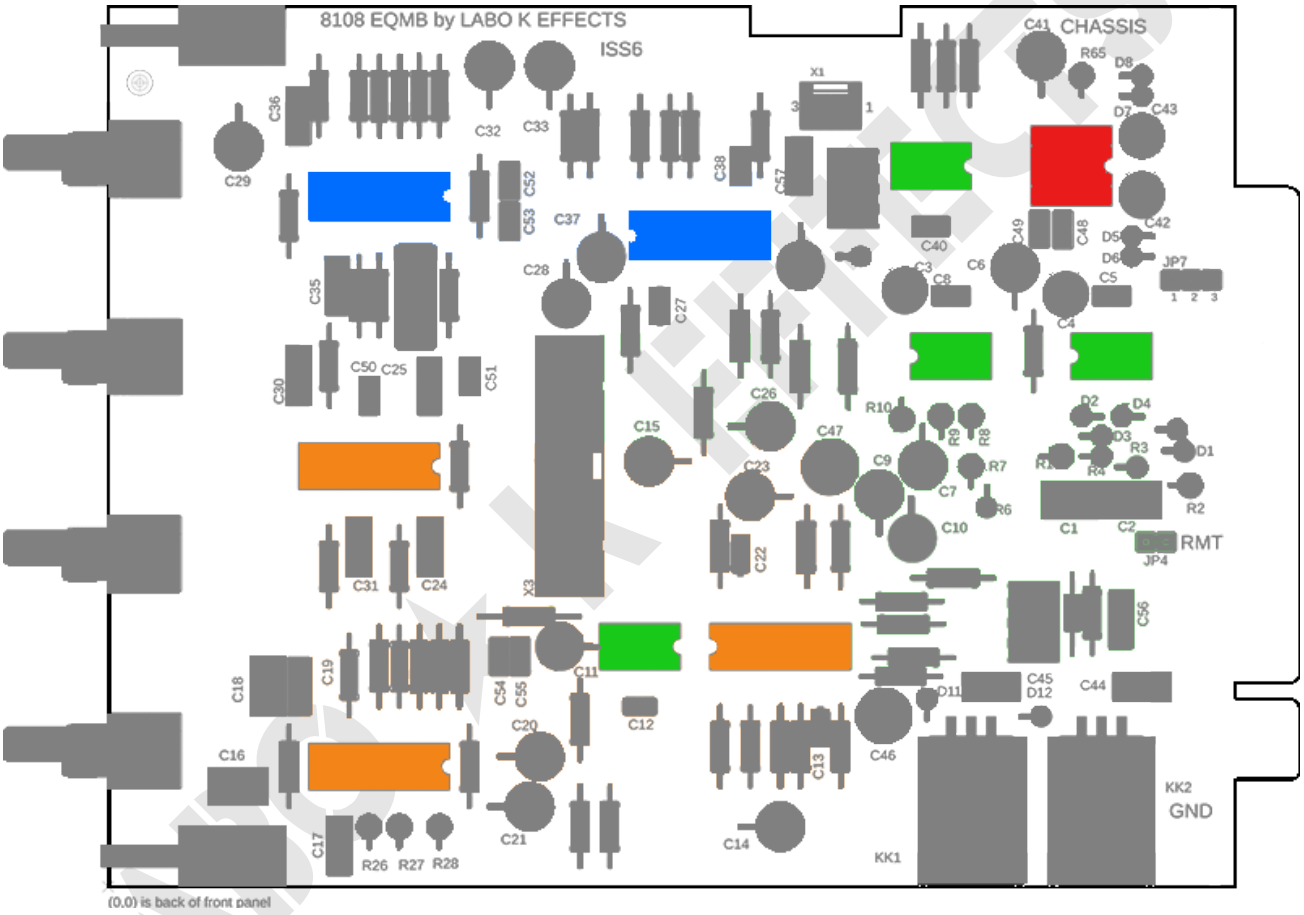



| Note | |
|---|---|
| | Do not solder all the pins of the pots |
| | Place the front panel and solder the pins once the axes are aligned |
| | 100uF Capacitors are fitted verticaly |



# MOUNTING INSTRUCTIONS MB 12

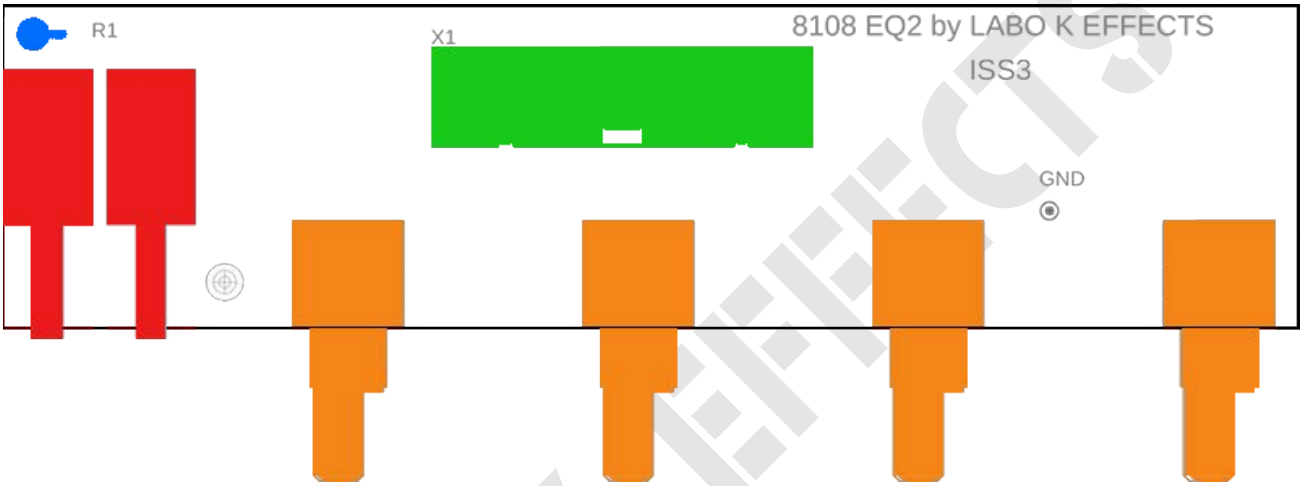
| | | |
|---|---|---|
| | THAT 1646 | |
| | NE 5534 | |
| | A1-4605-5 | |
| | HA3-4741-5 | |




| Note | Respect the orientation of Integrated Circuits |
|---|---|
| | |
| | |
| | |

# MOUNTING INSTRUCTIONS DB 01

| | | |
|---|---|---|
| | Switches ALPS | |
| | Connecteur IDC 20 | X1 |
| | Resistor 100K | R1 |
| | POR ALPS 2x10KA | |




| Note | The Resistor is installed vertically | |
|---|---|---|
| | | |
| | | |
| | | |

**Inter-card connection**

Connect the cards using the supplied ribbon cable (IDC 20-20)

# EQ 81 MOTHER BOARD BOM

| RESISTORS 0,6W metallised film 1% | | | | |
|---|---|---|---|---|
| Value | Code | Description | Qnt | |
| 0R |  | | 3 | |
| 1R |  | 16v or 18v | 2 | |
| 680R |  | | 3 | |
| 1K |  | | 8 | |
| 1K1 |  | | 1 | |
| 1K2 |  | | 1 | |
| 1K6 |  | | 1 | |
| 1K8 |  | | 2 | |
| 2K2 |  | | 2 | |
| 2K43 |  | | 1 | |
| 3K9 |  | | 2 | |
| 3K92 |  | | 1 | |
| 7K5 |  | | 1 | |
| 7K68 |  | | 1 | |
| 9K1 |  | | 30 | |
| 12K4 |  | | 1 | |
| 16K |  | | 3 | |
| 18K |  | | 2 | |
| 56K |  | | 2 | |
| 100K |  | | 2 | |
| 390K |  | | 1 | |

# EQ 81 MOTHER BOARD BOM

| CAPACITORS | | | | |
|---|---|---|---|---|
| Value | TYPE | Description | Qnt | |
| 10p | ceramics | Pitch 2,5 mm | 1 | |
| 22p | Ceramics | Pitch 2,5 mm | 4 | |
| 47p | Film | Pitch 5 mm | 1 | |
| 68p | Ceramics | Pitch 2,5 mm | 3 | |
| 68p | Film | Pitch 5 mm | 1 | |
| 470p | Sufflex | Pitch 10,2 mm | 1 | |
| 10n | Film | Pitch 5 mm | 3 | |
| 33n | Film | Pitch 5 mm | 3 | |
| 39n | Film | Pitch 5 mm | 1 | |
| 100n | Ceramics | Pitch 2,5 mm | 8 | |
| 150n | Film | Pitch 5 mm | 1 | |
| 220n | Film | Pitch 5 mm | 2 | (18V Version) |
| 470n | Film | Pitch 5 mm | 2 | |
| 22u | Pol 25V | Pitch 2,5 mm | 6 | |
| 100u | Pol 10V | Axial 6mm | 18 | |
| Diodes, Transistors, Regulators, Integrated Circuits | | | | |
| 1N4148 | | | 4 | |
| 1N4002 | | | 4 | |
| 1N4002 | | (18V Version) | 2 | |
| G6K-2P | Relais 12V | | 2 | |
| 7818 | | (18V Version) | 1 | |
| 7918 | | (18V Version) | 1 | |
| NE5534N | | | 4 | |
| THAT1646 | | | 1 | |
| 4741 | HA3-4741-5 | | 3 | |
| 4605 | A1-4605-5 | | 2 | |
| OTHER | | | | |
| Sockets | DIL 8 | | 5 | |
| Sockets | DIL 14 | | 5 | |
| Heat Sink | | (18V Version) | 2 | |
| Connector | IDC 20 Male | | 1 | |
| Header | 2 pins + jumper | | 2 | |
| Switch | Alps | | 2 | |
| Trimmer | 10K | | 1 | |
| Pot 10KA | Alps 2 decks | | 4 | |
| Front panel | | | 1 | |
| Knobs | Little wonder black | | 4 | |
| Knobs | Alps | | 2 | |

# EQ 81 DAUGHTER BOARD BOM

| RESISTORS | | | | |
|---|---|---|---|---|
| Value | TYPE | Description | Qnt | |
| 100K |  | | 1 | |
| OTHER | | | | |
| Switch | Alps | | 2 | |
| Pot 10KA | Alps 2 deck | | 4 | |
| Connecteur | IDC 20 Male | | 1 | |
| Knobs | Alps | | 2 | |
| Knobs | Little wonder black | | 4 | |
| Ribbon | IDC20-20 | Inter cards | 1 | |

# OPTIONS SETTINGS

**Use in stand-alone mode.**

Jumpers **JP4** and **JP7** must be removed.

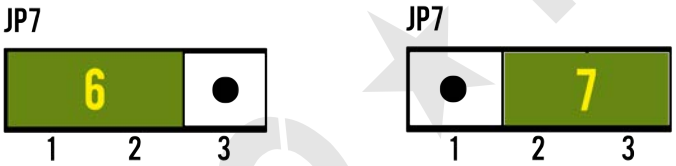
It is possible to form a Preamplifier + equalizer channel by coupling the EQ81 module with a PRE81 module.
The **CH** button on the module allows you to assign the equalisation section of the module to the preamp it is connected to. When the **CH** button is released, the module becomes stand-alone again.

**Use in Channel mode.**

It will be necessary to place the jumpers **JP4** from the EQ81 module.
(It will also be necessary to remove the jumper **JP1** from the PRE81 module.)

Setting of jumper **P7**

Normally pin 7 of the backplane connector is assigned to the Receive Insertion function. However, the **PRE81** preamplifier can be configured to have separate mic and line connectors. In this case pins 7 and 9 of the backplane connector are assigned to the Line input. The Receive Insert function is therefore assigned to pin 6 of the preamplifier connector.
The jumper JP7 is used to select pin 7 or 6 for the Receive function.

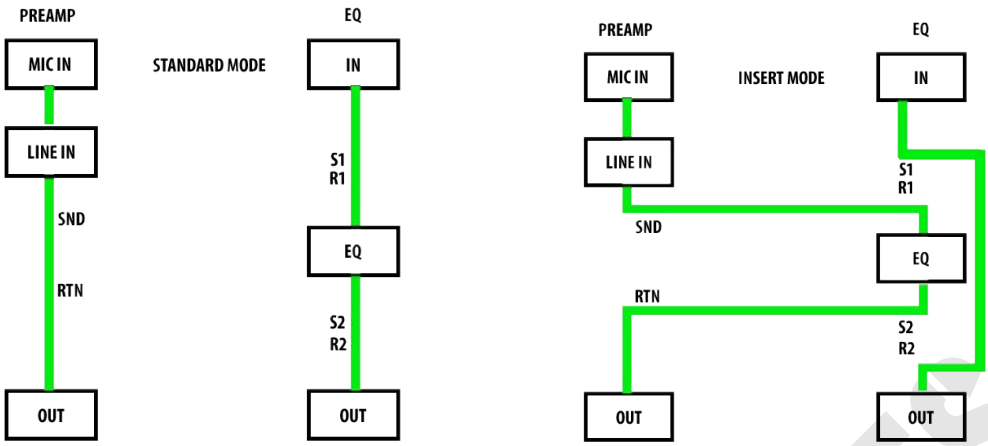



**Use in an API50,551X, & VPR rack**.

The 2 modules will have to be connected using an Insert Link cable.

**Use in a K551X rack from LABO K EFFECTS.**

If the K551X 02-02 backplane is available, the use of the cable link is not necessary.




Insert Link wire

Insert Link Cable Pinout

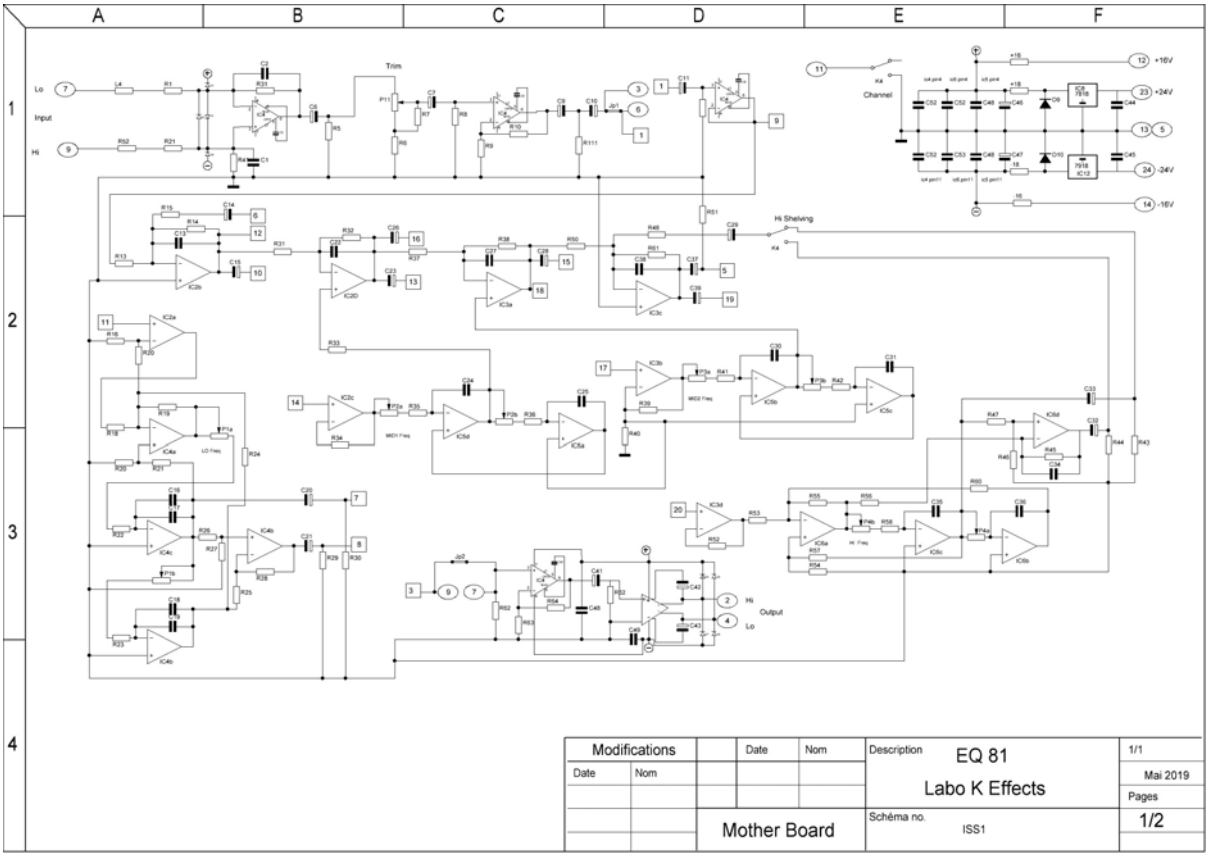
Wires 2 & 3 are crossed (colours are given as an example)

| | Preampli | EQ |
|---|---|---|
| 1 | GND (Black) | GND (Black) |
| 2 | SEND (Brown) | SND (Red) |
| 3 | Receive (Red) | Receive (Brown) |

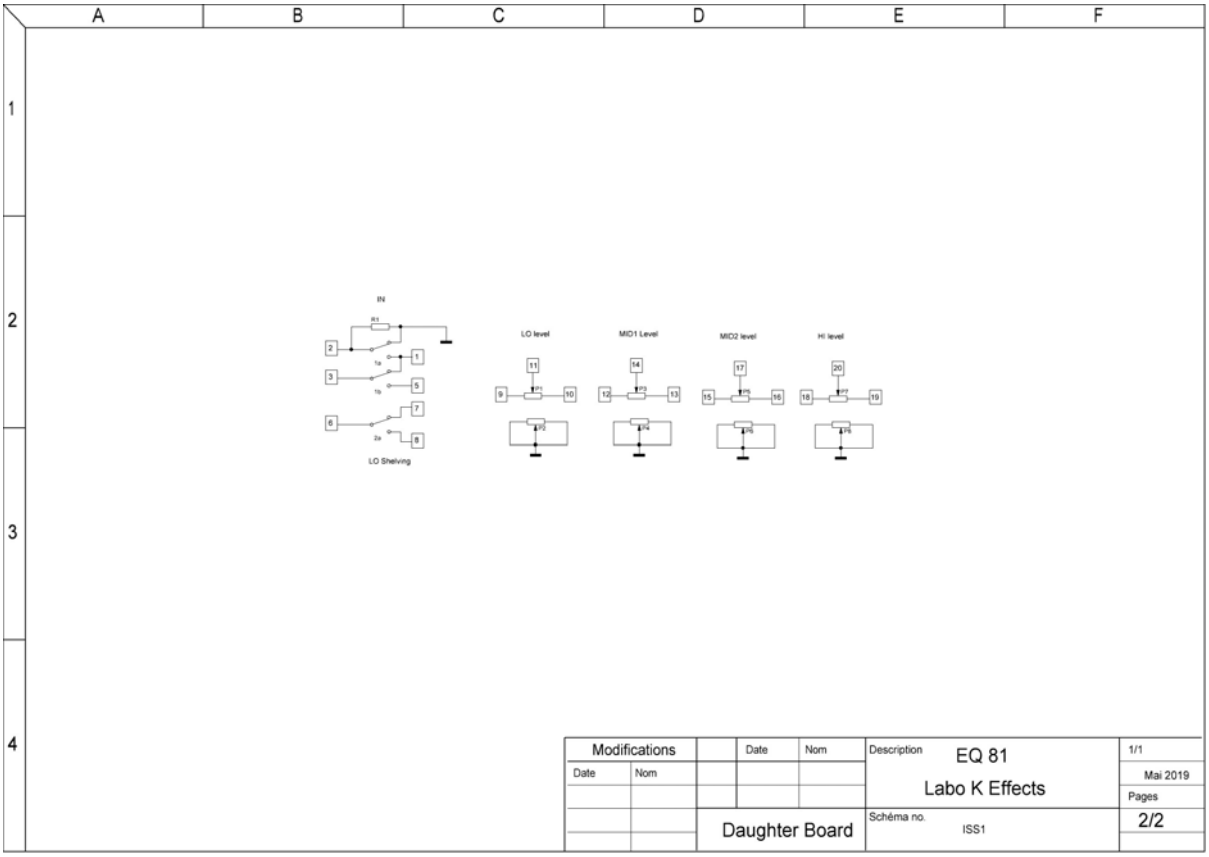
## CONNECTOR DETAILS

| PIN # | EQ81 | |
|---|---|---|
| | | |
| 1 | Chassis | Chassis |
| 2 | OUT + | Out Hi of module |
| 3 | SND | EQ section output |
| 4 | OUT – | Out Lo of module |
| 5 | PSU/Audio GND | PSU/Audio GND |
| 6 | Receive 2 | EQ (PRE81) section input |
| 7 | RECEIVE | EQ (Standard) section input |
| 8 | INPUT – (+4) | Input Lo du module |
| 9 | - | - |
| 10 | INPUT + (+4) | Input Hi du module |
| 11 | Remote | Activates the Channel Function |
| 12 | + 16V DC | + 16V DC |
| 13 | PSU/Audio GND | PSU/Audio GND |
| 14 | –16V DC | –16V DC |
| 15 | - | - |
| 16 | NC | NC |
| 17 | + 24V DC | + 24V DC |
| 18 | – 24V DC | –24V DC |

# EQ 81 MB SCHEMATICS



# EQ 81 DB SCHEMATICS






***Legal notice:***

***Labo★ K Effects declines all responsibility for any direct or indirect damage caused by improper use of the kit by the user.***