LABO ⋆ K EFFECTS

POWER SUPPLY KIT FOR STUDER 980 MODULES

CONTENTS

INTRODUCTION

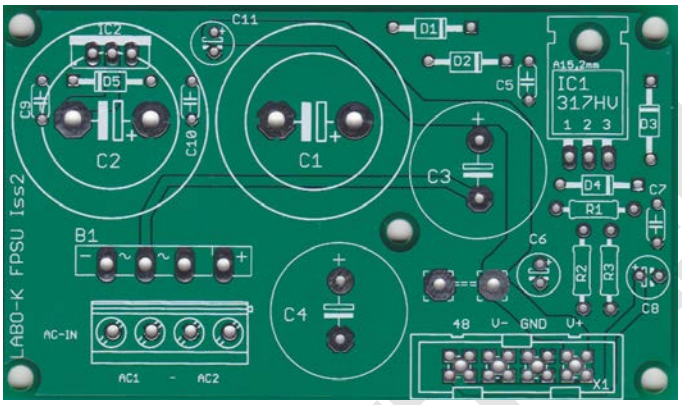
This kit allows to built a power supply specifically designed for Studer 980 Input channel to put them in a rack.
PSU bus system allows to connect up to 4 channels.
You just have to build the adequate ribbon.
The assembly kit secures the pcbs and radiator of the PSU.
The compact unit can be easily placed in the rack.
.

The voltages supplied are: +15,5V / -15,5V /+5.5V/+48V

KIT OVERVIEW

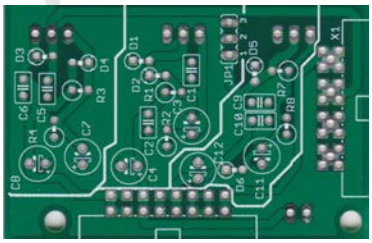
- **1 PCB (FPSU board) for connecting:**
    - 1 power transformer 2x15v 50/80VA (**not supplied**)
    - The +15,5V / -15,5V /+5.5V regulation board

This board performs the rectification and filtering of ac power.
It provides the +48V phantom.



- **1 PCB (VREG board) for connecting:**
    - PSU Bus
    - FPSU board

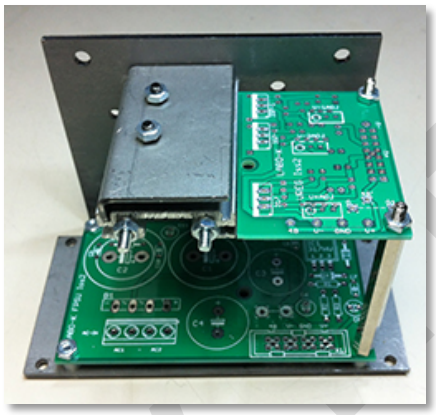
This board provides +15V / -15V / +5.5V regulated voltages



- **- Connectors and components**
    - *The power transformer is not supplied.*

COMPOSITION OF THE ASSEMBLY KIT

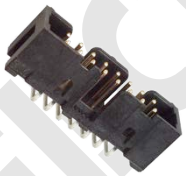
- **1 steel base for fixing:**
  - The FPSU card
  - The +15V / -15V +5.5V regulation card (VREG)
  - The heat sink



- **The following elements:**
  - 4 M3x15 screws (A)
  - 4 plastic spacers (B)
  - 2 50mm spacers (C)
  - 2 M3x60 screws (D)
  - 1 heat sink (E)
  - 1 clip (F)
  - 2 M3x15 screws (G)
  - 8 washers (H)
  - 8 M3 nuts (I)
  - 3 insulator pads for TO220 (J)
-

A	B	C	D	E	F	G	H	I	J	K
										

FPSU BOARD PART LIST

AC-IN PCB connector 4G	
Connector X1 IDC16	
B1	RS602 Rectifier
D1, D2, D3, D4	1N4002
R1	180R
R2	15K
R3	12K
C1, C2	4700µF/63v
C3, C4	1000µF/100v
C5, C7	100n100v
C6, C8	47µF/63v
IC 1	LM317HV

All resistors are 1/4w metal film 1%

FPSU BOARD CONNECTOR PINOUT

AC-In			X1	
1	15V AC1 *		1,2,3,4	+48V
2	15V AC1		5,6,7,8	-22V
3	15V AC2 *		9,10,11,12	0V
4	15V AC2		13,14,15,16	+22V

VREG BOARD PART LIST

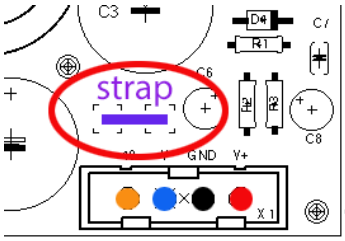
Connector X1, PSUBUS IDC16 M	
D1 to D6	1N4002
R1	200R
R2	680R
R3, R7	240R
R4, R8	2K74
C1, C2, C5, C6, C9, C10	100n/50v
C3, C4, C7, C8, C11, C12	10µF/63v
337	LM337
317, 317-2	LM317
TO220 Isolators	X3

All resistors are 1/4w metal film 1%

FPSU BOARD ASSEMBLY INSTRUCTIONS

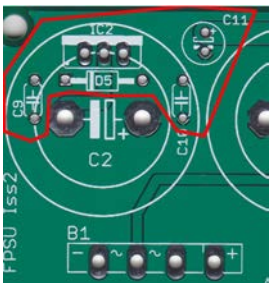
1) Solder a strap on the PCB as shown in figure 1.
2) Solder components on the pcb

Note :
Make sure that the legs of the components are cut as close to the board as possible so that they do not come into contact with the base.

Strap on the pcb	Bend the legs of capacitors C1 and C2 bef soldering
	

Note.

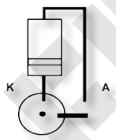
<u>The components IC2, D5, C9, C10 and C11 are not fitted</u>



VREG BOARD ASSEMBLY INSTRUCTIONS

1) Solder a jumper to the PCB between 1 and 2 as shown in the picture.
2) Solder the components on the PCB **except the regulators**

Vertical implementation of diodes



PSU-BUS CONNECTOR PINOUT

1	+48V
2	+48V
3	GND
4	GND
5	GND
6	GND
7	+15.5V
8	+15.5V
9	+15.5V
10	+15.5V
11	+5.5V
12	+5.5V
13	-15.5V
14	-15.5V
15	-15.5V
16	-15.5V

FIXING FPSU AND VREG BOARDS

1 : Place the base with the 4 screws (A) and 4 plastic spacers (B)
2 : Place the FPSU card on the base
3 : Fix the FPSU board on the base with 2 washers (H), 2 nuts (I) and 2 spacer (C)
4 : Attach the radiator (E) to the base using screws (D), 2 washers (H) and 2 nuts (I). The screws (G) are located on the left side of the radiator.
5 : Fix the card VREG with components facing down with 2 washers (H) and 2 nuts (I).
6 : Place the insulators pads (J).
7 : Place regulators in the good order.
8 : Fix the clip and solder regulators.
9 : Plug the ribbon.

Important : Check with a tester that the legs of the regulators are well insulated


1 Place the base


2 Place the board on the base


3 Fix the board on the base

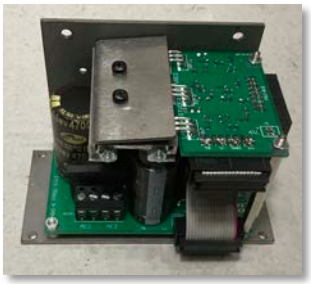

4 Fix the heat sink (D screw)


5 Fix the vreg board


6 Place the isolators


7 Place the regulators

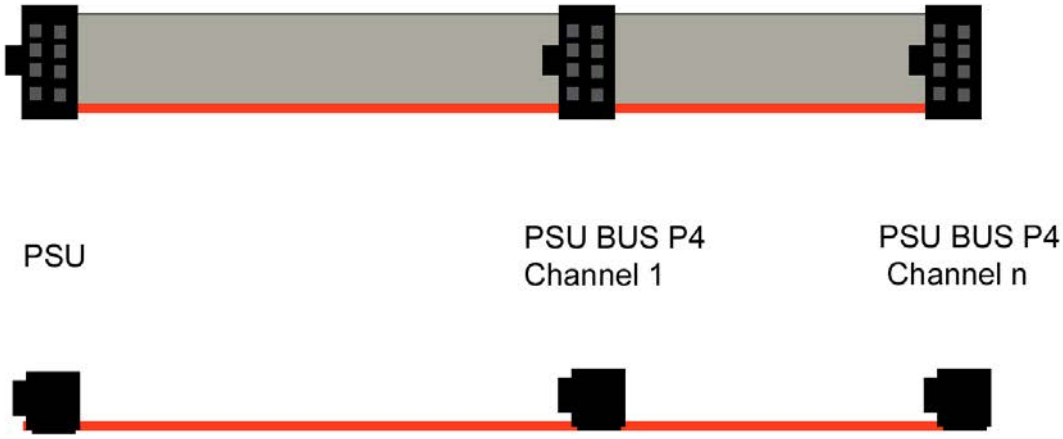

8 Fix the clip


9 Plug the ribbon

MANUFACTURING OF THE PSU BUS RIBBON

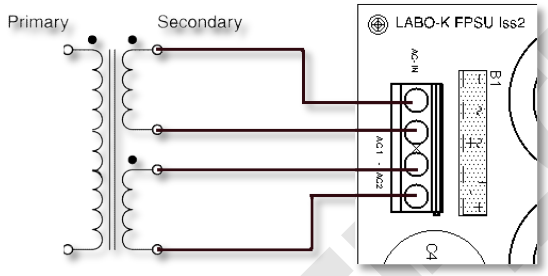
A good way to make the tablecloth is to use a vice.

The red wire of the ribbon must be placed in front of the mark on the female connector. This marker (small triangle) must be opposite the same marker on the male connector on the pcb



POWER TRANSFORMER WIRING

2X 15V 50VA (80VA for 4 channels) power transformer wiring



Important !

Check that the power supply delivers the +15.5V / -15.5V, 48V and 5.5V voltages before connecting the modules.

Legal notice:

Labo★K Effects *shall not be responsible and disclaims all liability for any damage (whether direct or consequential) that may result from a wrong use of the kit by the user.*