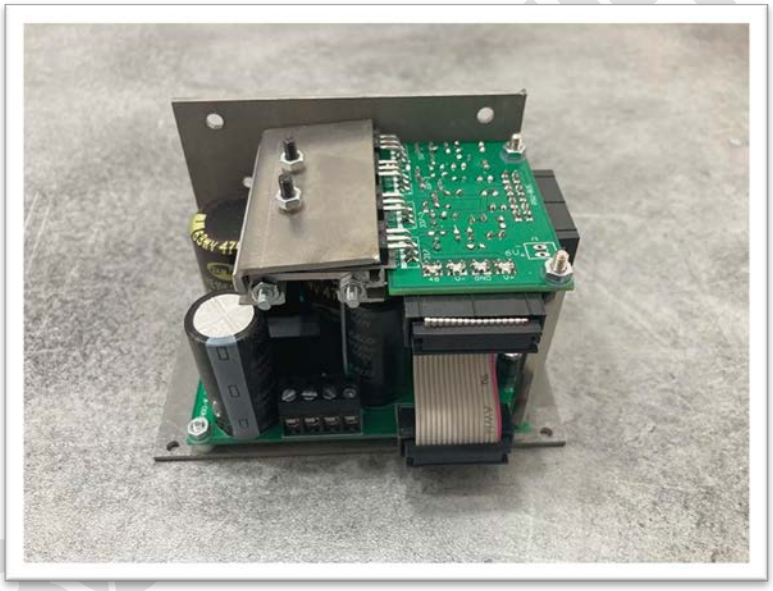
LABO ⋆ K EFFECTS

POWER SUPPLY KIT FOR STUDER 900 MODULES



Labo ⋆ K Effects – **www.labo-k-effects.com** – **karim@labo-k-effects.com**

CONTENTS

OVERVIEW 3

KIT OVERVIEW 4

COMPOSITION OF THE ASSEMBLY KIT 5

FPSU BOARD PART LIST 6

FPSU BOARD CONNECTOR PINOUT 6

VREG BOARD PART LIST 7

PSU BUS PINOUT 7

FPSU BOARD ASSEMBLY INSTRUCTIONS 8

VREG BOARD ASSEMBLY INSTRUCTIONS 8

FIXING FPSU AND VREG BOARDS 9

MANUFACTURING OF THE RIBBONS 10

POWER TRANSFORMER WIRING 11

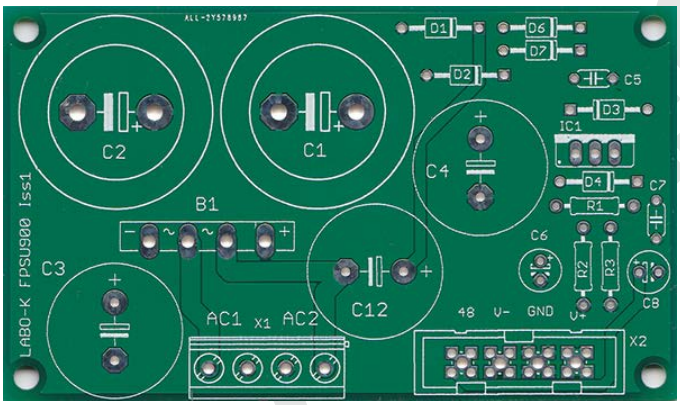
OVERVIEW

This kit allows to build a power supply specifically designed for Studer 900 Input channel to put them in a rack.
PSU bus system allows to connect up to 4 channels.
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: +15V / -15V / -24V /-6V/+48V

KIT OVERVIEW

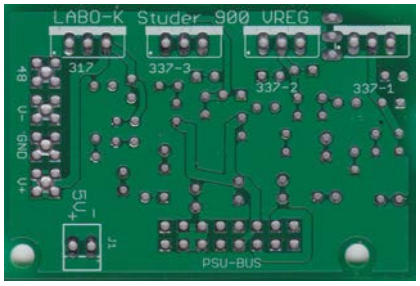
- **1 PCB (FPSU board) for connecting:**
    - 1 power transformer 2x24v 50/80VA (**not supplied**)
    - The +15V / -15V / -24V /-6V regulation board

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



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

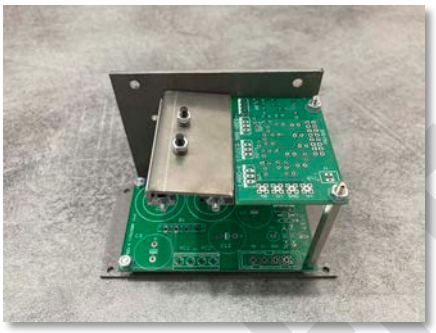
This board provides +15V / -15V / -24V / -6V regulated voltages



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

COMPOSITION OF THE ASSEMBLY KIT

- **1 steel base for fixing:**
    - The FPSU card
    - The regulation card
    - 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)
    - 6 washers (H)
    - 8 M3 nuts (I)
    - 3 insulator pads for TO220 (J)

A	B	C	D	E	F	G	H	I	J
									

FPSU BOARD PART LIST

Connector X1 Terminal Block	
Connector X2 IDC 2516-6002	
B1	RS602 Rectifier
D1, D2, D3, D4, D6, D7	1N4002
R1	180R
R2	15K
R3	12K
C1, C2	4700µF/63v
C3, C4, C12	1000µF/100v
C5, C7	100n100v
C6, C8	47µF/63v
IC 1	LM317HV

All resistors are 1/4w metal film 1%

FPSU BOARD CONNECTOR PINOUT

X1 (AC In)			X2 (DC out)	
1	24V AC1		1,2,3,4	V+
2	24V AC1		5,6,7,8	0V
3	24V AC2		9,10,11,12	V-
4	24V AC2		13,14,15,16	+48V

VREG BOARD PART LIST

Connecteur X1, X2 IDC 2516-6002	
D1 - D8	1N4002
R1, R3, R5, R7	243R
R2	1K
R4, R8	2K7
R6	4K64
C1, C2, C5, C6, C9, C10, C13, C14	68n/50v
C3, C4, C7, C8, C11, C12, 15, C16	10µF/63v
IC1, IC2, IC3	LM337
IC4	LM317

All resistors are 1/4w metal film 1%

PSU BUS PINOUT

	X1			X2
1	+48V		1	+48V
2	+48V		2	+48V
3	GND		3	+48V
4	GND		4	+48V
5	GND		5	V-
6	GND		6	V-
7	+15V		7	V-
8	+15V		8	V-
9	+15V		9	0V
10	+15V		10	0V
11	-24V		11	0V
12	-24V		12	0V
13	-15V		13	V+
14	-15V		14	V+
15	-6V		15	V+
16	-6V		16	V+

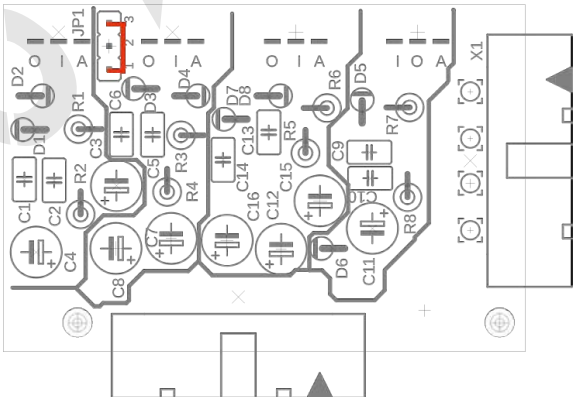
FPSU BOARD ASSEMBLY INSTRUCTIONS

1) Solder components on the pcb
2) Bend the legs of capacitors C1 and C2 before soldering

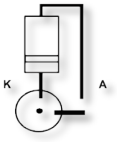
Figure 1

VREG BOARD ASSEMBLY INSTRUCTIONS

1) Solder a strap on the PCB between 1 & 3 as shown in picture.
2) Solder the components on the PCB **<u>except the regulators.</u>**



<u>Vertical implementation of diodes</u>

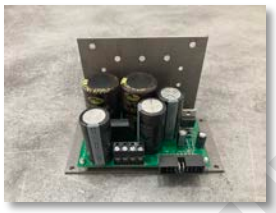


FIXING FPSU AND VREG BOARDS

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 heat sink (E) on the base with the screws (D), 2 washers (H) and 2 nuts. The screws (G) are on the left of the heat sink
5: Fix the card VREG with components facing down with 2 washers (H) and 2 nuts (I).
6: Place the insulators pads (J) and the regulators in the good order.
7: Attach the clip (F) on the heat sink (E) using 2 washers (H) and 2 nuts (I).
8: Solder regulators.
9: Connect the 2 cards with the interboard 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

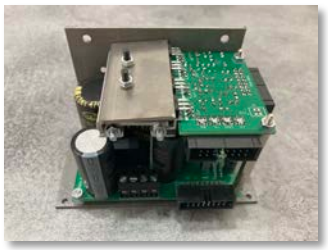

3 Fix the board on the base

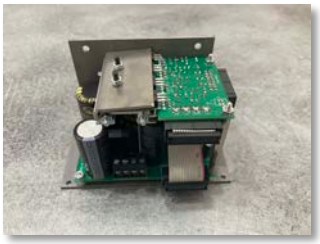

4 Fix the heat sink


5 Fix the VREG board


6 Place the regulators


7 Fix the clip

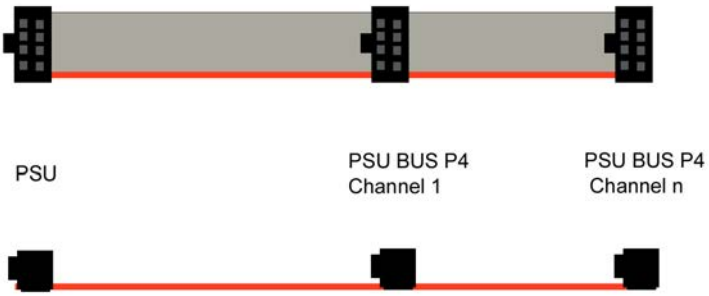

8 Solder regulators

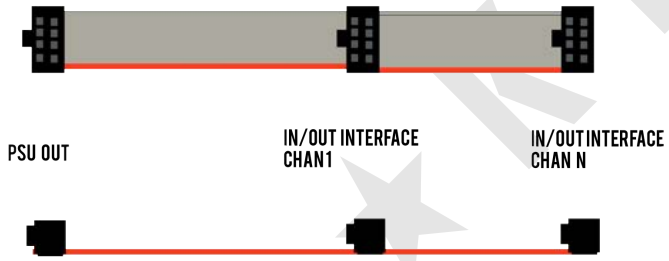

9 Connect the 2 cards

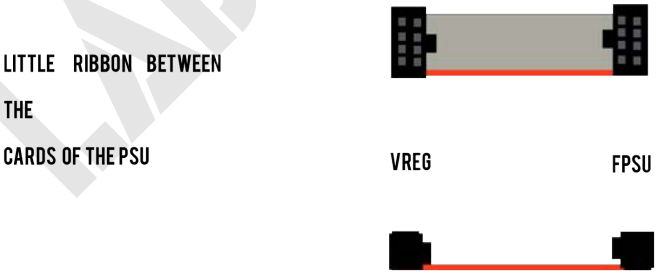
MANUFACTURING OF THE RIBBONS

A good way to build the ribbon 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 (except for the small PSU interboards Ribbon)

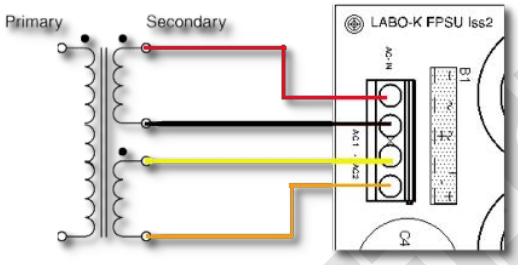


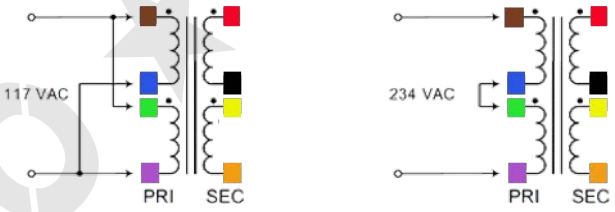




POWER TRANSFORMER WIRING

2X 25V 50VA (80VA for 4 channels) power transformer wiring





115/220 option

Legal notic :

Labo★ K Effect 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.