Kentech Instruments Ltd.

Power supply for P860X Streak Tube

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PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE SWEEP UNIT.

Serial Number J03*****

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DISCLAIMER

This equipment contains high voltage power supplies.Although the current supply capacity is small, careless use could result in electric shock. It is assumed that this highly specialised equipment will only be used by qualified personnel.

Kentech Instruments Ltd. accept no responsibility for any electric shock or injury arising from use or misuse of this equipment. It is the responsibility of the user to exercise care and common sense with this highly versatile equipment.

1 INTRODUCTION

This manual describes the operation and use of the Kentech Power supply for Photonis P860X Streak Tube. The manual gives the electrical specifications and describes the setting up procedure.

1.1 SPECIFICATIONS

Five output rails
Photocathode -15kV
Quadrapolar lens (QLV) +500V +/- 100V
Quadrapolar lens (QLH) -500V +/- 100V
Focus Electrode F2 -5kV +/- 500V } independent
Focus Electrode B2 -5kV +/- 500V
Self latching HT enable
Two interlocks
universal mains power

2 CIRCUIT DESCRIPTIONS

The circuit has five separate high stability powers supplies . Each supply is controlled by a DC control voltage to set the votlage. In addition there are internal potentiometers that are used to set up the start and end voltage of the range available from the front panel, see figure??.

Zener diode chains are used to limit the output voltages in the event of a feedback loop failure of the stabalised supplies. In addition the supplies F2and B2 are linked with zener chains that limit the voltage between them to ??

Two interlocks are provided. Each output needs to be shorted to ground to allow the unit to turn on the HY. Interlock failure will turn of the HT. We do not recomend that these interloclks be relied upon to protect the image tube, but they will prevent accidental enabling of the supplies.

The supply rails, Photocathode, F2 and B2 also have currnt monitors on them. Excessive current drwn from these rails will cause the LED on the front panel to illuminate. The thresholds can be set inside the unit, see figure??

Each supply rail also has a built in low voltage monitor point. These have been calibrated to the voltage monitored at the output with a 1GW probe. Note that this may not be quite the voltage tat would appear on a tube as the tube will draw less curent than the 1GW probe and there is a series current limiting resistor.

The monior outputs are calibrated on the assumption that they will be connected to a 10M input impedance meter.

For rails Photocathode, F2 ad B2, the monitor output is 1/1000th of the output voltage. For rails QLV and QLH they are 1/100th.

The output of the photocathode rail can be adjusted via the front panel preset potentiometer with te use of a small screwdriver. the other fours rails have multiturn lockable knobs with counters. They are setup so that the centre voltage (counter at 500) corresponds to the centre of the range as stated in the specification.

Figure 1 Main board components

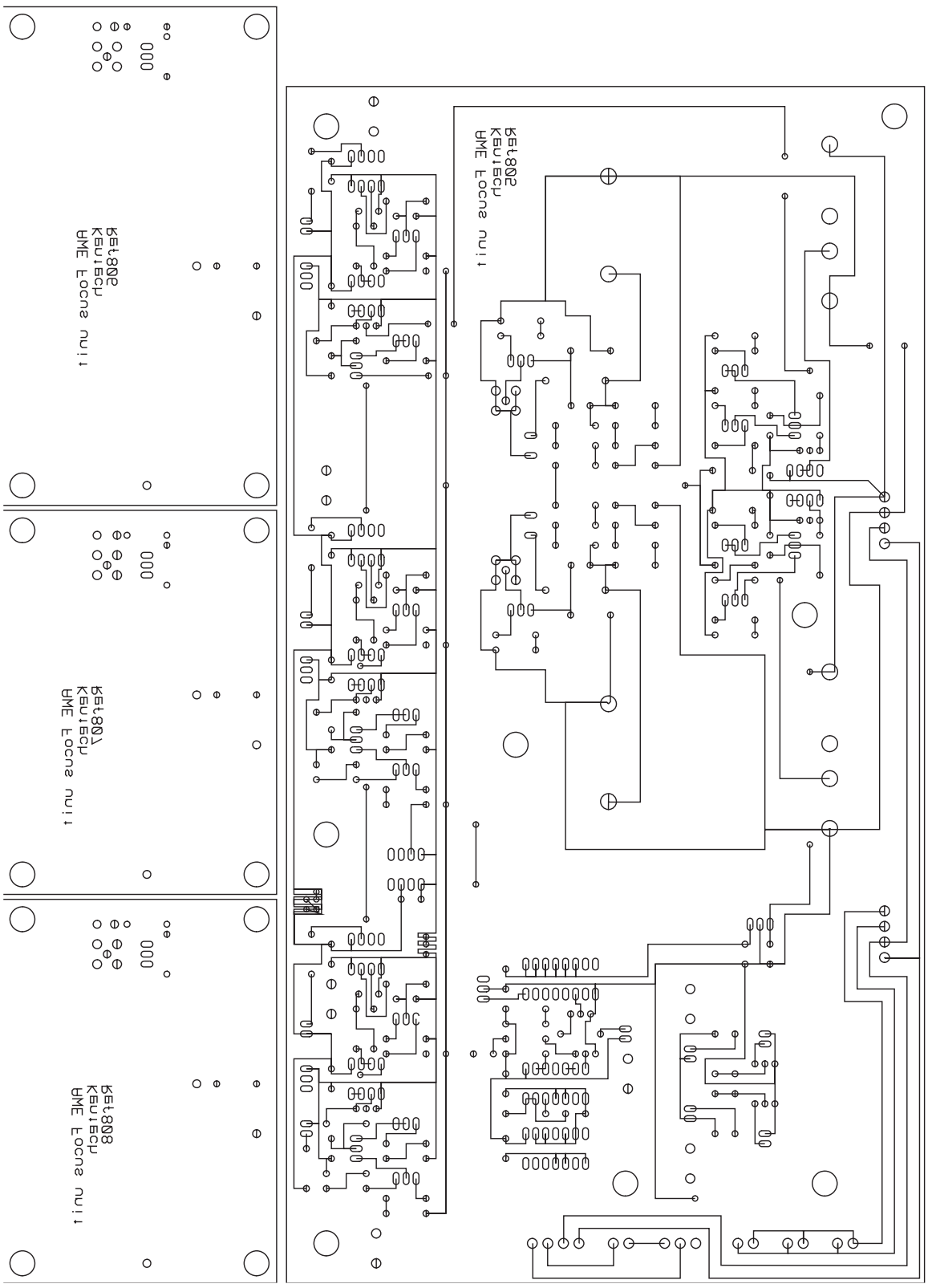
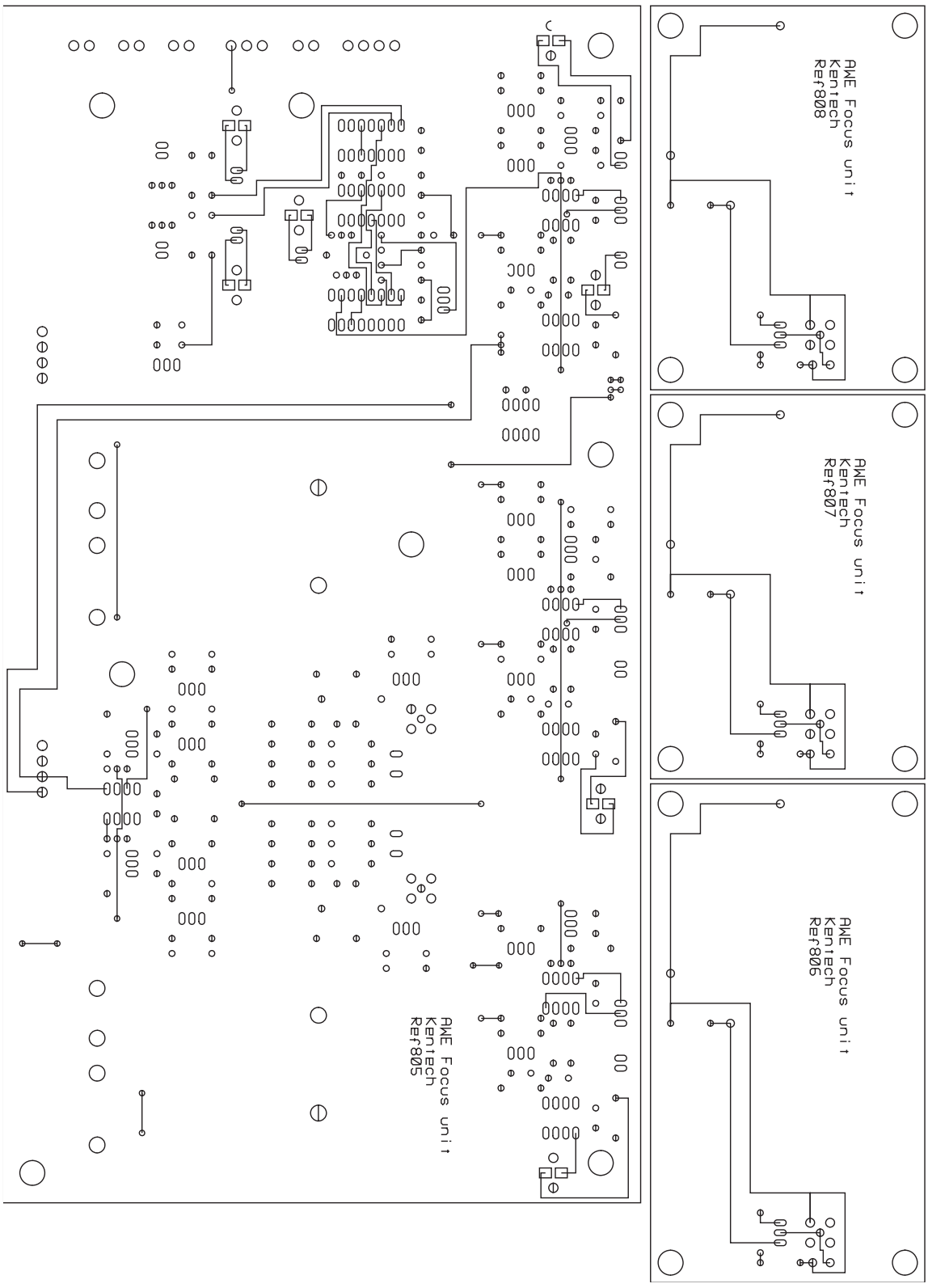


Figure 2 Bottom tracks

Figure 3 Top Tracks



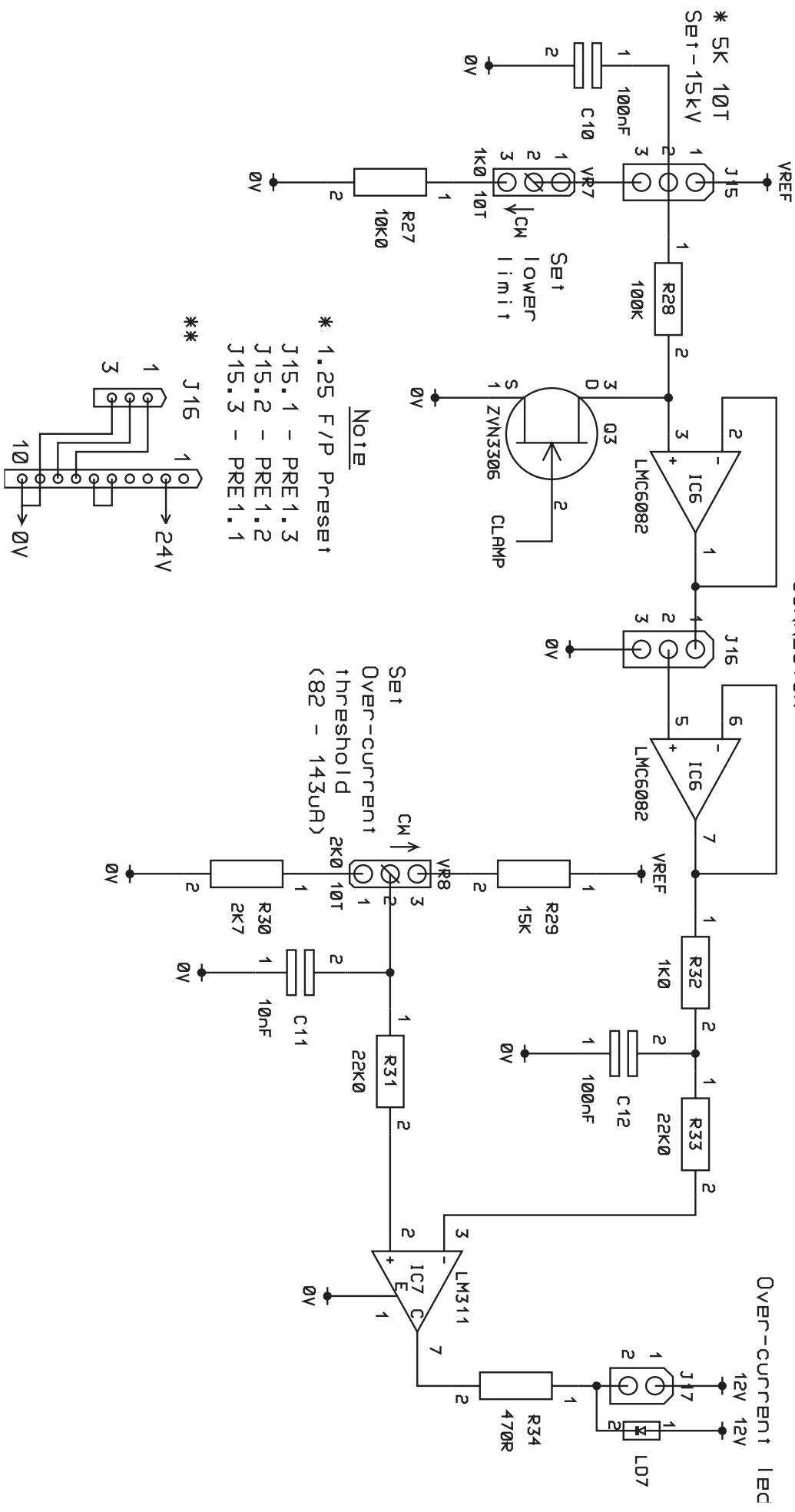


Figure 4 15kV Photocathode supply

Figure 5 B2 supply

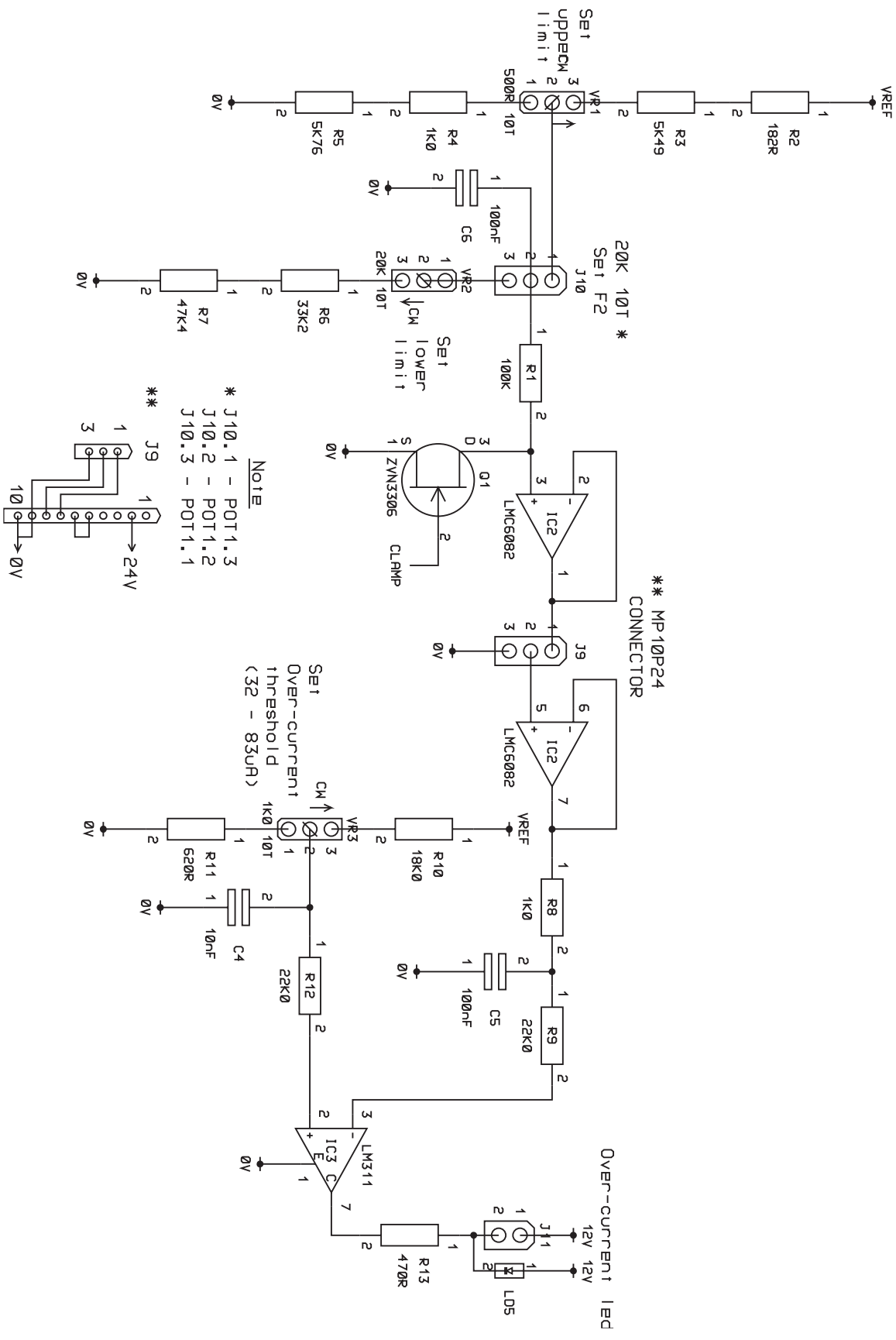


Figure 6 F2 supply

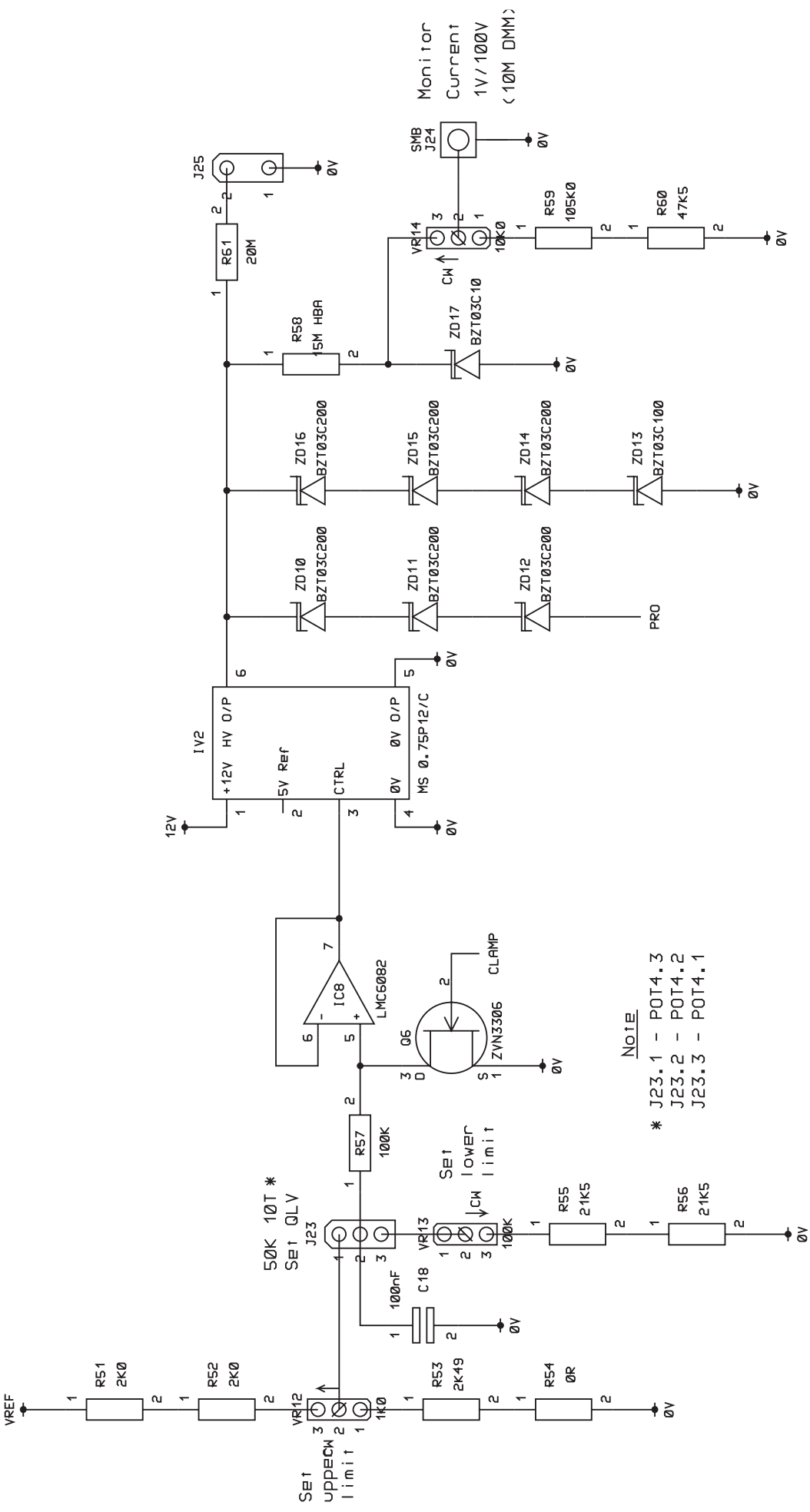


Figure 7 QLV supply

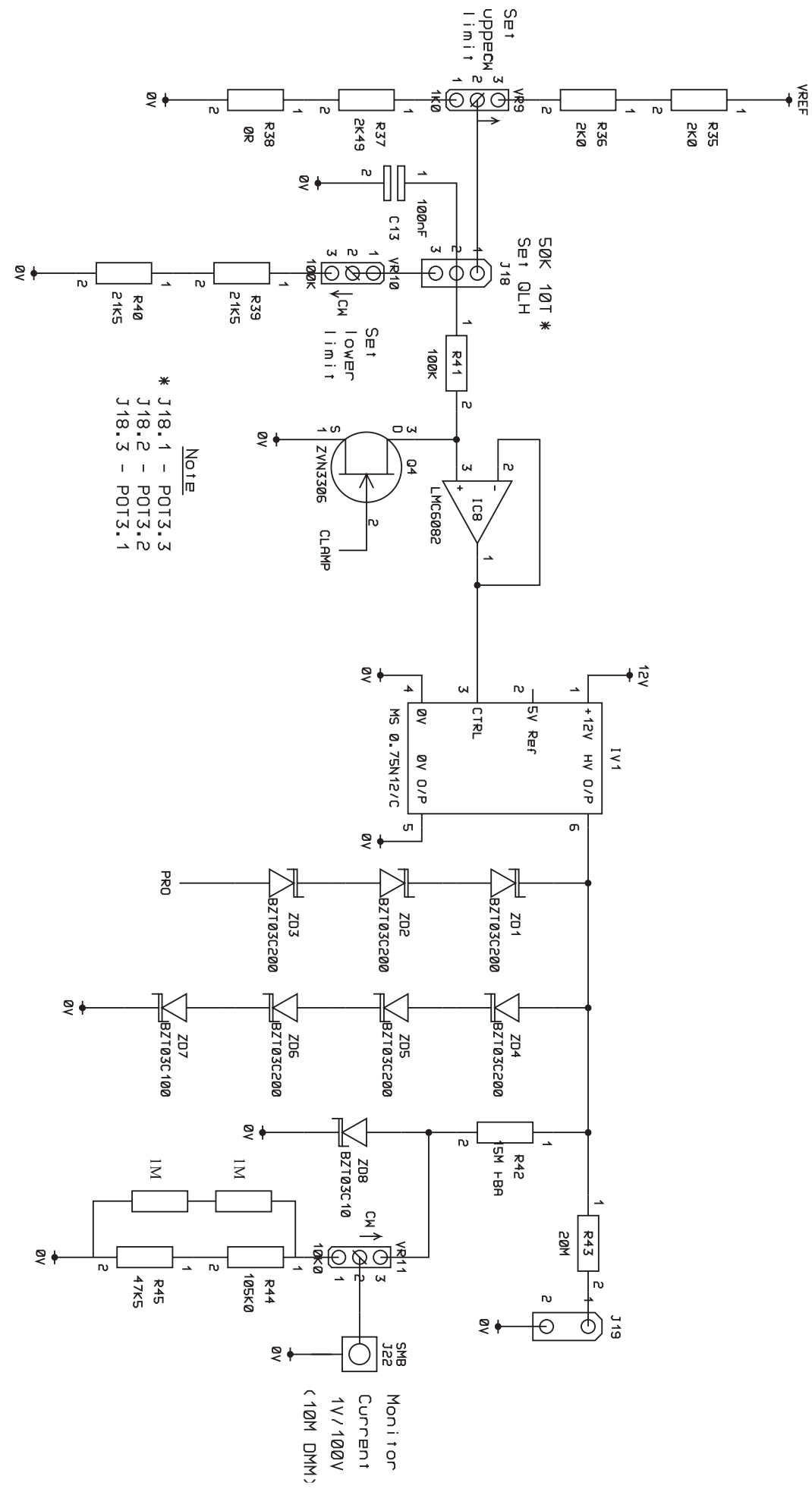


Figure 8 QLH supply

Figure 9 Monitors on 5kV and 15kV rails

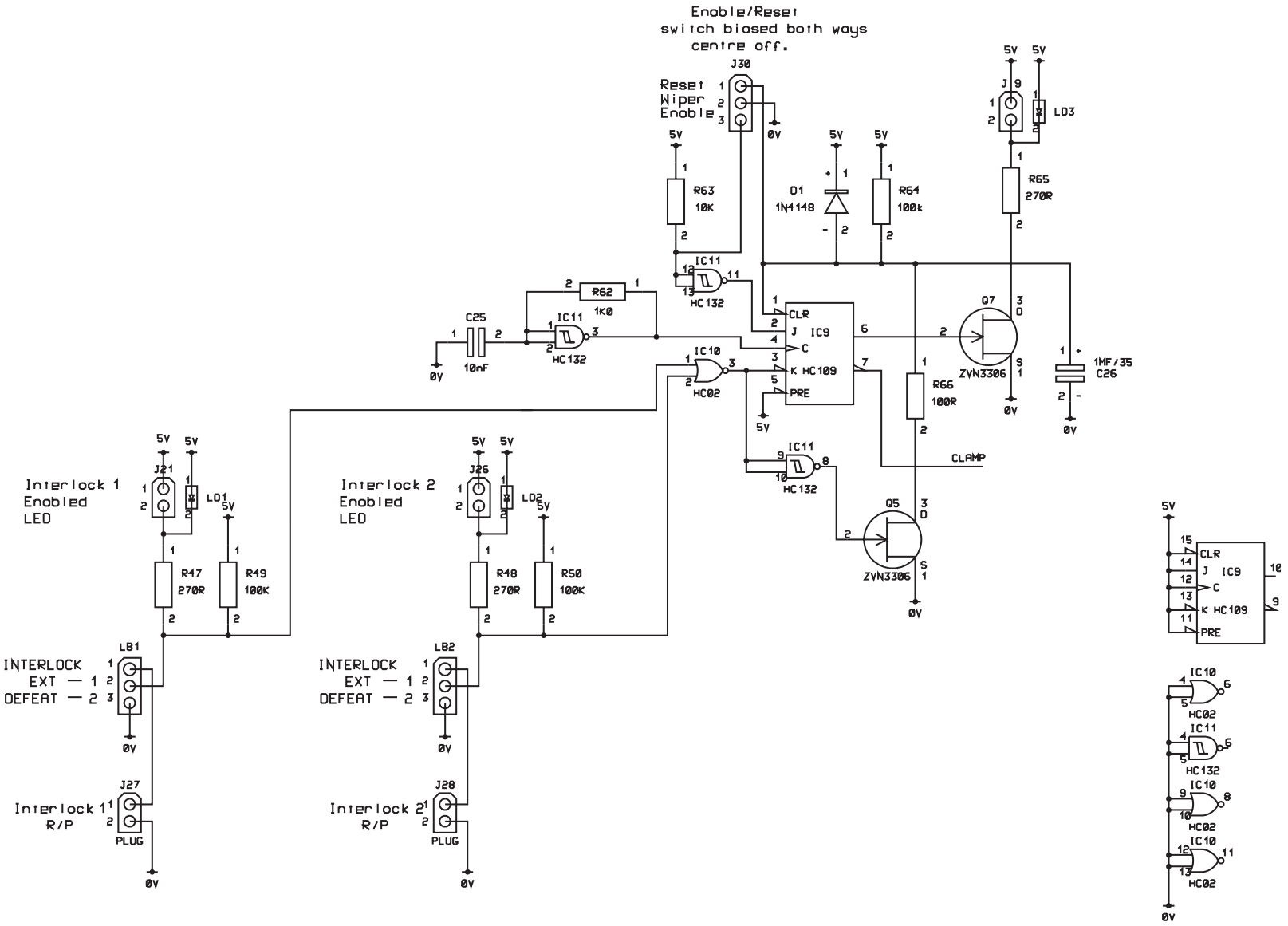


Figure 10 Interlock Logic

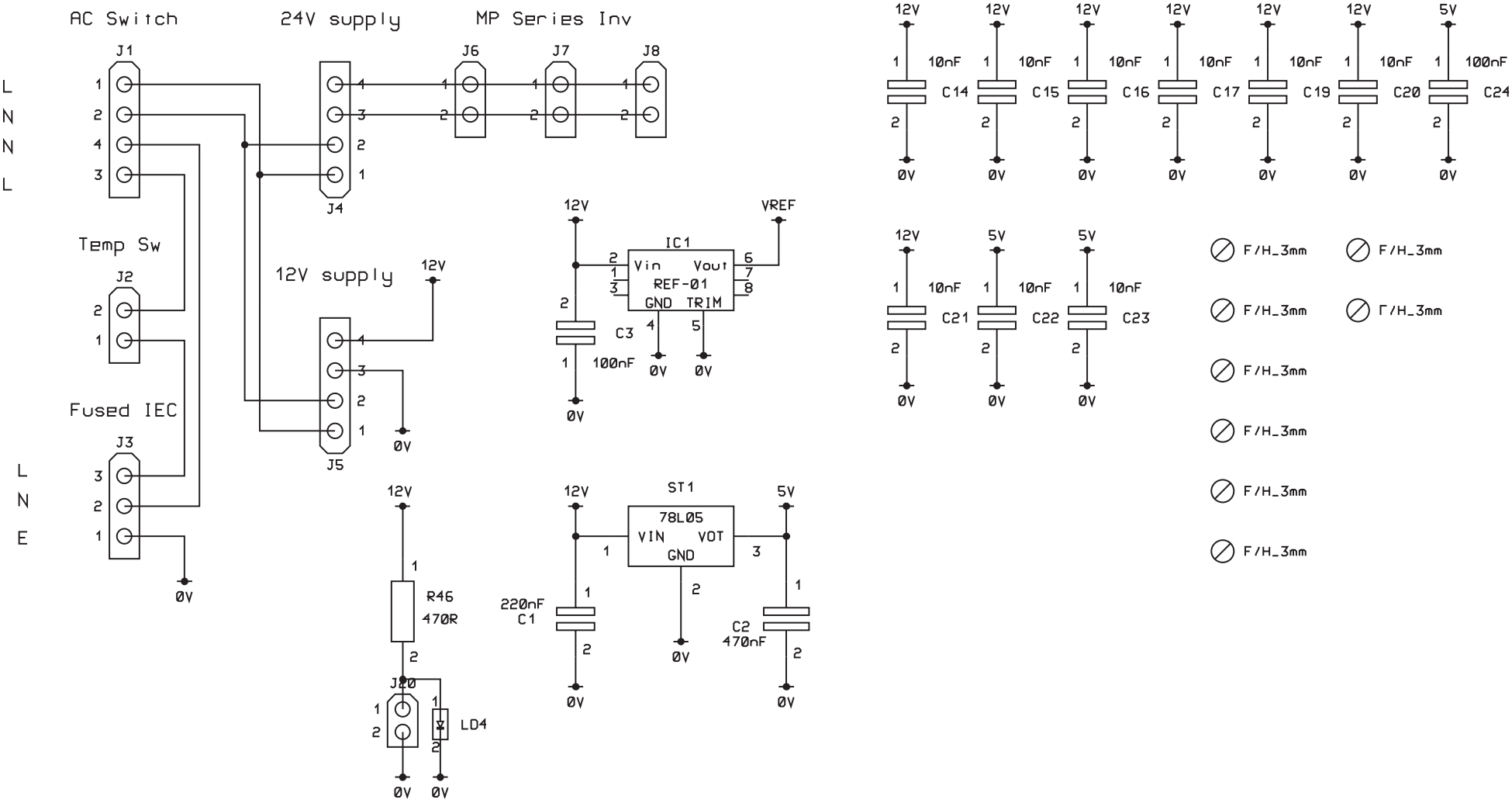


Figure 11 Main Power supply