

PM ICU Power Board Design

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1 Design definition for the PM ICU Power board

This pcb is designed as a temporary substitute for the main flight converter. It uses commercial specification converter modules and linear regulators to achieve the required voltages.

Circuit diagram: A1/5275/012, issue 1.

PCB layout: X-1645-001.

The 5V and 2.5V current monitor circuits are attached to this document.

The measured no load output voltages and tested continuous loads are:-

+5.00V fixed, for ICU logic. Test load 1.8A.

+2.51V fixed, for ICU logic. Test load 210mA.

+14.9V trimmable, for ICU monitoring. Test load 60mA.

-14.9V trimmable, for ICU monitoring. Test load 60mA

+7.26V trimmable, for camera. Test load 250mA.

-7.25V trimmable, for camera. Test load 250mA.

+15.0V fixed, for camera. Test load 250mA.

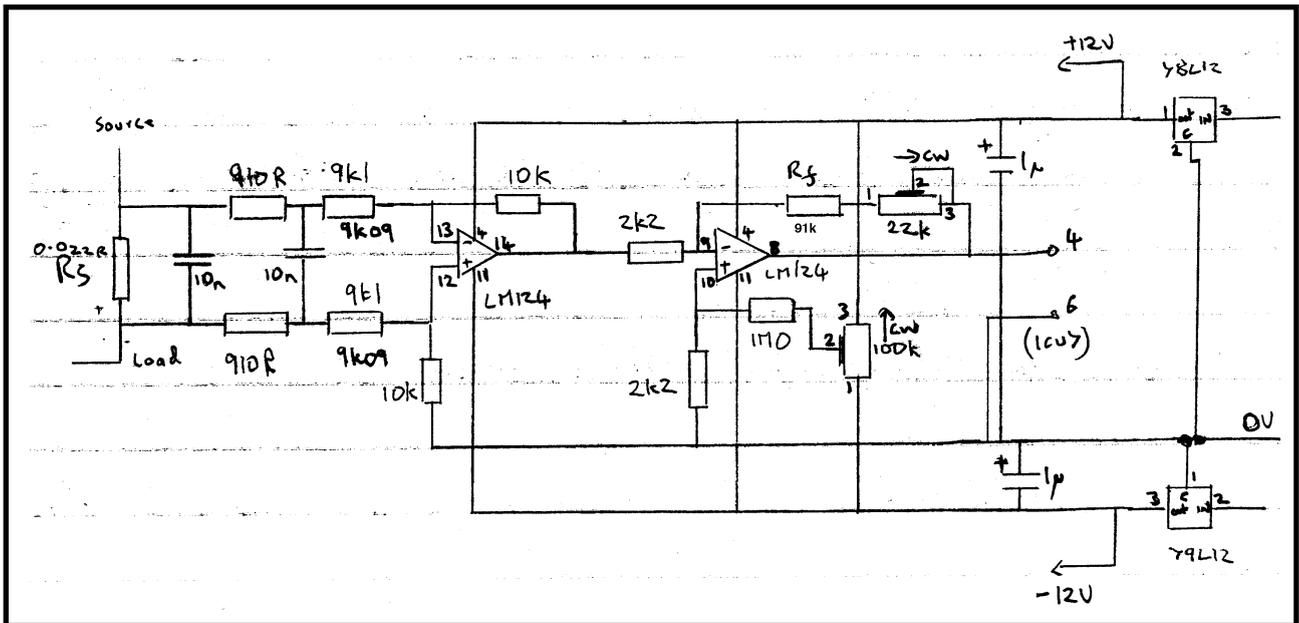
-11.9V fixed, for camera. Test load 50mA.

All outputs also have an indicator mounted in a recess in the frame to show nominal operation. The main bus input has a filter intended to achieve compliance with MIL-STD 461 for conducted electrical noise, although the performance has not been measured. The main bus input is reverse voltage protected. There are no specific mechanisms to restrict input inrush current. All outputs have protection against short circuit and reverse current flow.

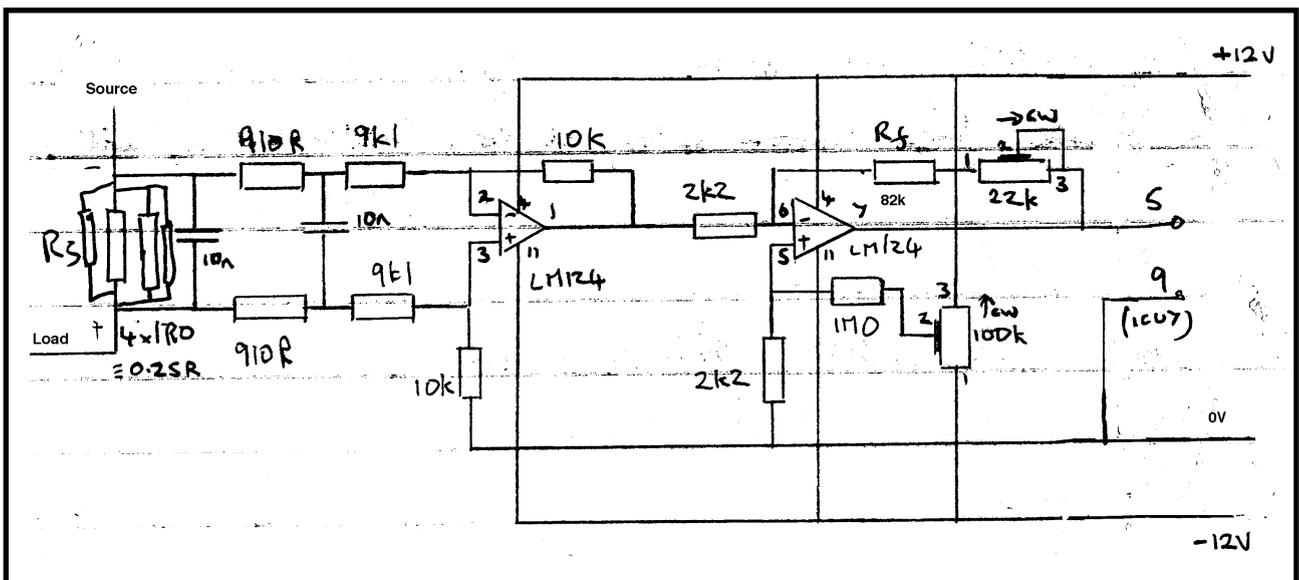
The pcb also has current monitors for the +5V and +2.5V outputs, built on a general purpose prototype area. The circuits are attached, but there is no layout diagram. The outputs are brought out to D-type connector ICU7, using unallocated pins. Both outputs are designed to drive a general purpose multimeter set to measure voltage (not current). The full scale reading is 2V. For the +5V monitor this corresponds to 2A; for the 2.5V monitor it corresponds to 200mA. The outputs are not protected against abuse, although a momentary short circuit is unlikely to be a problem. The zero trim point is somewhat prone to temperature drift and has been set up at about 20 C.

The construction standard will not withstand significant vibration or shock.

5V Monitor Circuit



2.5V Monitor Circuit



Front Panel Indicators

