

Maplin Mains Meter 2000MU-UK

By G8MNY

(Updated Mar 10)

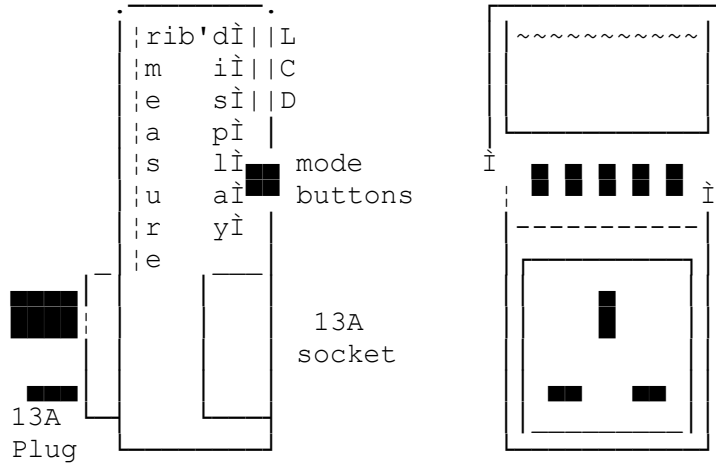
(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

This plug in meter is made by Prodiget Electronics Co for Maplin. It measures true RMS:- Frequency, Voltage, Current, VA, Power Factor, & kWhrs to quite a high accuracy. Current over 16A sounds an alarm.

Inside there are 2 PCBs with SMD components & an IC on each, they are joined by short soldered in ribbon cable.

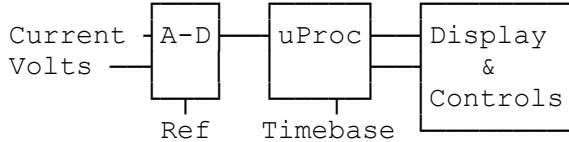
The measuring PCB includes the series dropper PSU.

The display PCB has the processor mode buttons & display drive.

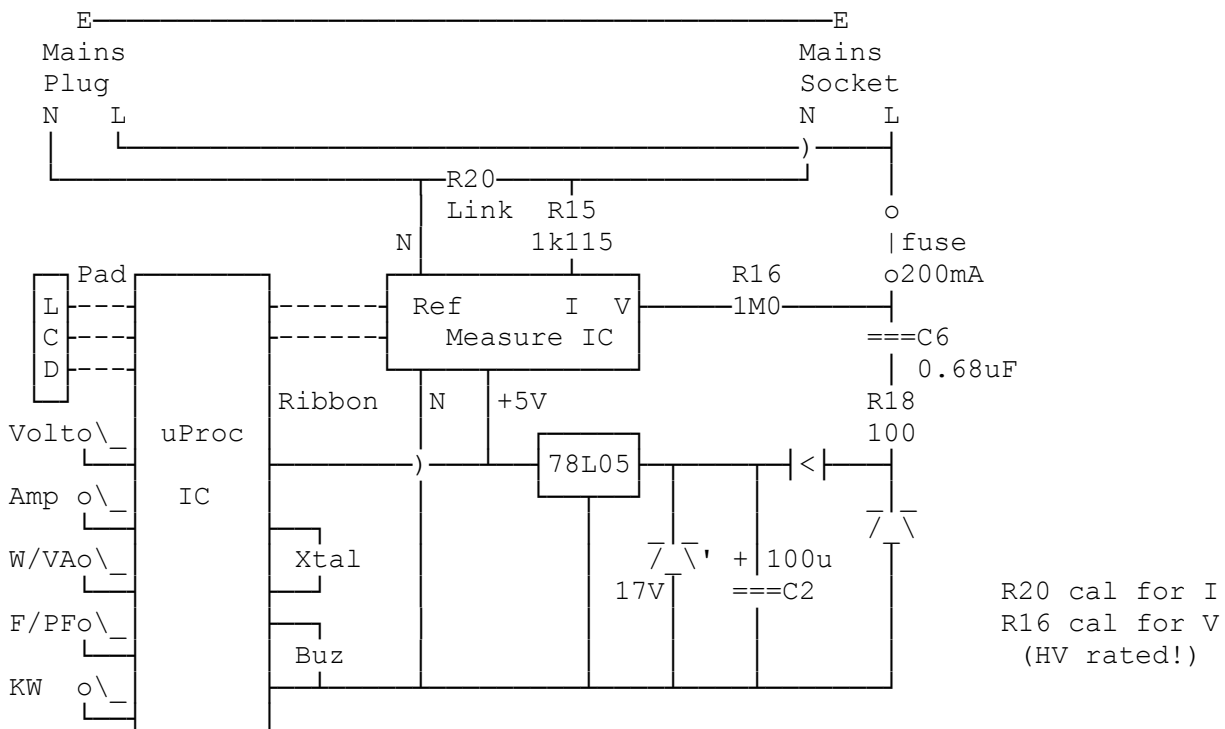


PRINCIPLE

Once in digital form, the instantaneous voltage & currents can easily be number crunched in the uProc to measure & display the Voltage, Current, Frequency, True RMS power Watts, VA, Power Factor, & kW Hours.



CIRCUIT



IMPROVEMENTS

- 1/ The unit is not to be used outdoor (not water proof) & the internals are live. I syringed in "copydex" rubber solution over all the case joints & cracks, including the plug, socket & LCD surround. Although not perfectly water proof it is a lot safer in outdoor use.
- 2/ R18 100R 5W surge R came unsoldered when measuring inverter square wave. Replaced with 660Ω (2x 330R 5W) using the unused solder lands available. This ensures less peak current on non sine wave sources. I also added a solder tags as a heatsinks to each end of the 17V zener connections.
- 3/ Added a small white LED to the side of the LCD, with a tin foil as opposite end reflector. The 3.5V LED runs across the zener supply via a 1k. So the meter is usable at night. This also indicates if there is power, but the uProc has crashed (needs repowering).

See my buls on "AC Theory", "Constant Voltage Transformers", "Variacs", "Portable Appliance Testing", "UK 13A Fused mains plug" & also "Mains Power Protection".

Why don't U send an interesting bul?

73 De John, G8MNY @ GB7CIP