

## ***oBeMS 'Real World IO Board'***

This board offers a way to connect a Raspberry Pi to real world wiring. It also incorporates copper track for some commonly used support circuits, and an area where driver or level shifting chips, where bespoke circuits can be added if required.

Although this board was designed to support the oBeMS (Open Source Building Energy Management System) project, it is open hardware, and offers generic and modular circuits which are likely to be useful with other microcontrollers.

### **Feature Summary**

- Mains 5V PSU or DC 5V switching regulator for DC / battery, AC or 'wild power' operation. Provision to mount a big external smoothing capacitor if necessary.
- 3.3 volt low drop out switching regulator if you need to power more electronics than the 3.3 volt power supply on the Pi can manage.
- Hardware watchdog timer which reboots the Pi automatically if it crashes or otherwise goes off the rails (adjustable timing).
- Sixteen 10 bit A to D channels with SPI interface.
- Two 10 bit D to A channels with SPI interface.
- 'Prototyping area' where you can stick a few chips, e.g. op-amps, drivers for relays etc for various ad hoc IO functions.
- 8 LED indicators.
- 36 screw connectors which can be patched to make it easy to connect whatever external wiring you need, any of which can be jumpered to ground or pulled up to 3V3 by a resistor. Pull down resistors may also be connected.
- The oBeMS Open source software allows local and networked access to the hardware, and includes a template for the development of Building Management, Energy Management, and Infrastructure Control Systems.

Components for all of the above can be included or omitted as required, and jumpered into more or less any configuration.