

Opening doors

An open communications standard aims to make it easier to work with smart meter developers. By **Graham Pitcher**

Smart metering, if we are to believe what we are being told, offers great opportunities for electronics companies. While they may not be able to break the stranglehold that a number of large companies have on the meter itself, providing interfaces for products that interface to smart meters could turn into good business.

Smart metering is one of the lead technologies in the fight against climate change. According to the Energy Saving Trust, smart meters can help consumers reduce their carbon emissions by up to 10%. If the UK as a whole adopted smart meters and reduced energy usage by 5%, this would save consumers £1.2 billion a year and cut CO₂ emissions by 7.4 million tonnes.

Last year, the UK Government committed to install smart meters in all 26m homes by 2020. "But even if roll out begins in 2013, which is now the earliest realistic date," said Alistair Morfey, technology director at Cambridge Consultants, "there will need to be at least 70,000 smart meter installations per week. Scale this up across Europe and it becomes clear that a solution to get things moving is needed."

And Cambridge Consultants' solution is the Universal Metering Interface (UMI), which it is making available as an open standard. It believes UMI will help industry to deploy smart meters in homes and businesses and for the European Union to meet its 2020 energy targets.

UMI is an ultra low power, low cost and highly defined board to board wired interface which will allow standard Home Area Network (ZigBee or Wireless M-Bus, for example) or Wide Area Network (such as GPRS) communications modules to be added to any metering product, either during production or in the field.

Because a UMI communications module is separate from the metrology components covered by the requirements of the Measuring Instruments Directive, there is no need to reapprove the meter when communications interfaces are changed.

This extends both the life of the meter and its marketability to different regions.

Telegesis has already developed UMI based products. The ETRX-UMI is based around the Ember EM357 ZigBee chip, which exceeds the dynamic range requirements of IEEE802.15.4 by more than 15dB.

The ETRX-UMI has a link budget of 109dB, currently the best in the industry. There is 192kbyte of flash and 12k of ram available, which means even the most memory intensive ZigBee applications can be accommodated. A 2Mbit eeprom allows firmware upgrades to potentially be done 'over the air'.

According to Telegesis, OEMs designing meters, in home displays and similar products can now design their products as UMI Hosts, then choose the UMI module they require. This will reduce development costs and risk, whilst speeding time to market.

Meanwhile, communications companies can develop their modules as UMI Peripherals, allowing access a larger market. Because the same device can be plugged into a range of UMI Hosts, this should support larger production volumes and lower unit costs.

According to Cambridge Consultants, UMI resembles a ruggedised version of the SD card interface. There is one UMI Host, which can connect to up to 15 UMI Peripherals. The Host is always

powered and features a UTC real time clock.

MI Hosts have one port for each UMI Peripheral and these can be either high power (1A, 5V) or low power (50mA, 3V). Any mixture of high and low power ports can be created. Meanwhile, there are three types of UMI Peripheral:

- High power peripherals can only be plugged into a high power UMI Port.
- Low power peripherals can be plugged into low or high power UMI Ports and could support ZigBee, KNX, Z-Wave, Wavenis, Bluetooth or Wireless M-Bus modules.
- Self powered peripherals can be plugged into a low or high power UMI Ports. These peripherals could be Wired M-Bus, Wired KNX, power line communications or a battery powered GSM module.

The UMI peripheral must conform to a mechanical specification. The pcb measures 50 x 40mm, which includes a small 'keep out' zone around the edge of the card.

ne For further information on any subject visit: www.newelectronics.co.uk

