

Siemens Metering Services

Manchester’s Chips Building is installed with a ground-breaking smart water metering system

It’s not just an outstanding landmark, Manchester’s Chips building is hiding some remarkable technology that makes it one of the smartest buildings in the city: it can tell you if it springs a leak. The building is installed with a ground-breaking smart metering system that has the possibility to:

- Read its own water meters
- Measure water consumption in real-time
- Communicate breakdowns and leaks as soon as they occur

Siemens Metering Services and Power Plus Communications (PPC) installed a combination of modems and gateways collect information about water usage from 142 individual water meters and transfer it to the building’s power cables. From there it is uploaded to the power grid using standard broadband protocols, and read using a Network Management System.

"This pilot demonstrates the ability of the technology to help water utilities move from conventional metering to a smart infrastructure," said Ian Sykes, Siemens MCS Global Headquarters Product Group.



Overcoming the High Rise Challenge in Manchester

Using a combination of technologies, PPC found a solution to challenges that typically affect Smart Metering in high rise environments. Systems that rely solely on 3G technology encounter problems where some meters are below ground level, or surrounded by metal pipes. LAN and fibre-optic solutions involve expensive and time-consuming rewiring.

With hundreds of meters transmitting data from the same location, wireless and radio signals can under-perform. PPC used a combination of radio and 3G signals to bridge gaps, but the core of the system relies on the transfer of broadband data over existing power lines, making it very robust, reliable and cost-effective.

Seamless Installation

The components were installed without any disruption to the building’s occupants, connected to cabling in hallways rather than directly to meters in each household. Each gateway device took just a couple of minutes to connect without any need to switch off power or water supplies. Within hours of installation, data from the meters began to be available, and readable in near real-time. In the event of a leak, anomalous data can be identified and narrowed down to a specific meter, and a repair team dispatched to the right part of the building.

Project Summary	
Customer	Siemens Metering Services
Goals	Automated water meter reading and control
Solution	BPL in the low voltage network
Results	<p>142 smart meters enabled for remote reading in near real-time</p> <p>Installation time per gateway less than two minutes, under power</p> <p>Significant savings on meter reading and maintenance costs</p>

Technical Details

The solution is based on PPC's leading development in Broadband Powerline (BPL) communications. Based on a 200 Mbps standard chip, PPC's system turns existing electricity grids into an Internet protocol based communication platform. Every existing power line becomes a broadband data interface and power grids turn into Smart Grids.

Challenges like smart metering, load management, electric vehicles or the integration of new devices and applications become controllable with PPC's BPL technology.

The system enables broadband data transmission with a 200 Mbps gross data rate on low (230/400 V) and medium voltage (1 to 36 kV) networks.

The solution monitors 142 AMR water meters and is fully scalable.

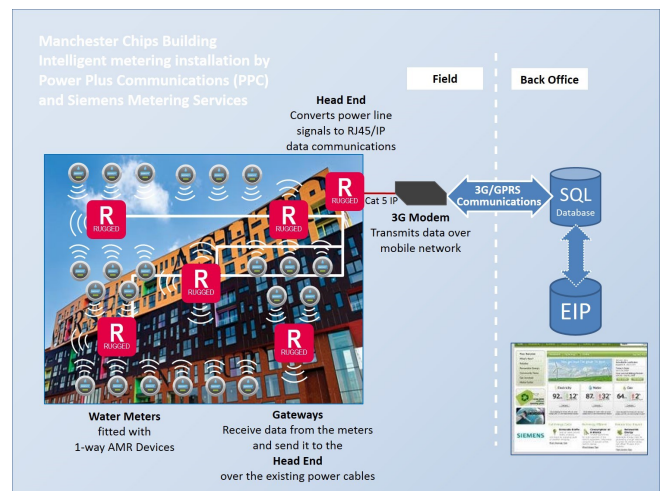
BPL Rugged Modems for Low Voltage Networks



The metering gateway connects the BPL network with all electronic meters. Thanks to its use of standard interfaces it can read meters of all types, independent of manufacturer.

Network Management System (NMS)

PPC's Network Management System provides supervision and diagnosis of the condition of all network components, as well as the online status of devices. It offers comprehensive statistics and reports and is easy to use with a web-based client/server architecture.



Regular meter reading and meter management can be performed remotely, without inconvenience to the householders or costs to the utility.

Meter information can be used not just to track billing data and measure consumption, but also to look out for any unexpected results that might indicate a water leak or a blocked pipe.

Technical Summary

Situation	Multi-dwelling unit with 142 water meters in the basement and around the building
Solution	Broadband data transmission on LV (230/400 V) and MV (1 to 36kV) networks
Products	8 MHz Wireless M-Bus, short range radio interfaces Low voltage BPL gateways System management with SNMP
Results	Regular meter reading and meter management able to be performed remotely