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## AP Systems - Energy Management Systems

**Italian Leader in Energy Management Systems reduces costs and speeds up time to market with Sierra Wireless AirPrime WMP100**

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AP Systems is a leading supplier of M2M solutions, with a strong focus on Energy management systems. It operates with a working team of more than 130 employees across five offices in Italy and two international branches. AP Systems is organised into three technical divisions, each built on a specific specialisation: PAL providing IT systems for the public sector; MIT which develops M2M systems for the remote management of pipeline meters; and Security, tasked with delivering video surveillance systems and other security solutions.

## **Business challenge**

AP Systems develops Multi Metering Management systems for the utility market. AP Systems required a solution that would allow its customers, including some of the biggest names in the Italian energy market, to efficiently concentrate the data flowing from their energy meters and to remotely manage these meters from a central location.

To stay ahead of its competitors, AP Systems is focused on producing high quality and cost effective solutions. For its Multi Metering Management systems, AP Systems were looking for an architecture that would allow reducing the complexity of the system. This has been possible with the AirPrime WMP100 embedded wireless module that integrates the CPU and the 2G modem into a single device.

Davide Bassetto, product manager at AP Systems, explains:  
“Traditional architectures for meter concentrators have seen the CPU element placed externally to the wireless modem. If, for example, the CPU element goes end of life, it can produce an engineering headache for the utility as the entire board needs to be re-engineered to get the concentrator back online. Such additional engineering challenges amount to higher OPEX for our customers  
something we have always been keen to avoid.”

Having worked together on some of Italy's largest M2M projects (including the deployment of 500,000 Sierra Wireless-enabled energy monitoring devices to most Italian energy distributors), AP Systems was confident that Sierra Wireless could provide the elements it needed for a successful solution. As Davide explains:  
“When we started to design this particular solution we went immediately to Sierra Wireless. Aside from the quality of its M2M wireless modules, the support they can offer as a true business partner is unique. They can provide us with value added support and counsel that we simply could not get anywhere else.”

## **Sierra Wireless AirPrime WMP100 embedded wireless module**

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Working with Sierra Wireless, AP Systems developed its M350C concentrator. Designed for the simultaneous remote management of gas, electricity, water, heat and street lighting, the M350C can manage data from different types of devices in a single infrastructure using cellular, low power RF or power line carrier connections.

Combining the benefits of GPRS or EDGE wireless connectivity and embedded CPU functionality, the Sierra Wireless AirPrime WMP100 module was selected to power the M350C concentrator. The surface mount form factor and dedicated IOs are suited for automated component placement, and enabled AP Systems to optimise its total system cost.

The innovative architecture of the AirPrime WMP100 removes the need to have different components for the modem and the microcontroller on the Printed Circuit Board (PCB), reducing the overall Bill of Materials (BOM) cost for AP Systems and delivering a highly compact, robust and simple solution.

## **Sierra Wireless Embedded Application Framework**

AP Systems has long been a strong proponent of using Sierra Wireless' Embedded Application Framework for developing the software used to run its M2M applications, and the solution plays a key role in operating the M350C concentrator. The Embedded Application Framework consists of an M2M-specific operating system (Open AT), a range of software libraries, and an integrated development environment (Developer Studio) based on Eclipse™. It benefits AP Systems by bringing to bear an innovative operating system that is specifically customised to M2M as well as a range of building blocks and toolkits which accelerate the application development process, thereby allowing AP Systems to bring products to market faster and reduce development costs.

Davide explains: "One of the greatest benefits of working within the Embedded Application Framework is that every investment we have ever made in developing software for Sierra Wireless modules can be extended across any new applications. Besides rapidly decreasing time to market for new solutions it also means we can achieve real return on investment on our partnership with Sierra Wireless. The Embedded Application Framework and the software it enables was a key reason for us choosing to work with Sierra Wireless in the development of the M350C concentrator."

## **Results**

The AirPrime WMP100 integrates both the modem and the microcontroller into a

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single unit which reduces the number of components by around 20-30 per cent when compared to traditional architectures. As well as dramatically reducing the complexity of the solution, making it easier to complete any necessary field repairs, this approach also reduces the BOM cost, making the solution much more cost effective for AP Systems.

Moreover, due to the faster time to market afforded by using Sierra Wireless' Embedded Application Framework, AP Systems is in a good position to stay ahead of the competition in launching new Multi Metering Management systems, helping it to retain its leadership in the market. AirPrime WMP100 and Embedded Application Framework benefits AP Systems' M3-C concentrator by:

- Enabling quick time to market
- Reducing BOM cost
- Reducing complexity and improving in-field repair times
- Increasing return on investment for current and future investments in Sierra Wireless technology
- Delivering robust units with a life-span of between 15-20 years; ideal for use outdoors where weather conditions can be difficult

The M3-C concentrator has already been implemented by a number of Italian utilities that are enjoying the knock-on benefits of the solution. Amongst other customer deployments, AP Systems has shipped modules to nine Italian cities and around 3,000 lampposts are being managed by the M3-C concentrator. In this deployment the solution has delivered significant power reductions by allowing the utility to remotely manage (apply different light profiles, switch on/off, read measurements, maintain and diagnose) street lamps according to location, season and time of day. The deployment also leads to reduced maintenance costs as repair crews have access to information from the lampposts to see which ones need to be repaired at any given time; saving the need for several trips to repair separate lamps on the same street. Working with Sierra Wireless, AP Systems is meeting its aim of providing its customers with a robust metering management system that can also deliver measurable OPEX savings and help with the drive towards a more environmentally friendly industry.

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**Solution:**

- Sierra Wireless AirPrime WMP100 embedded wireless module
- Embedded Application Framework with M2M-specific Open AT OS, software libraries and integrated development environment

**Key Benefits:**

- Reduced total BOM cost
- Accelerated development time and quick time to market