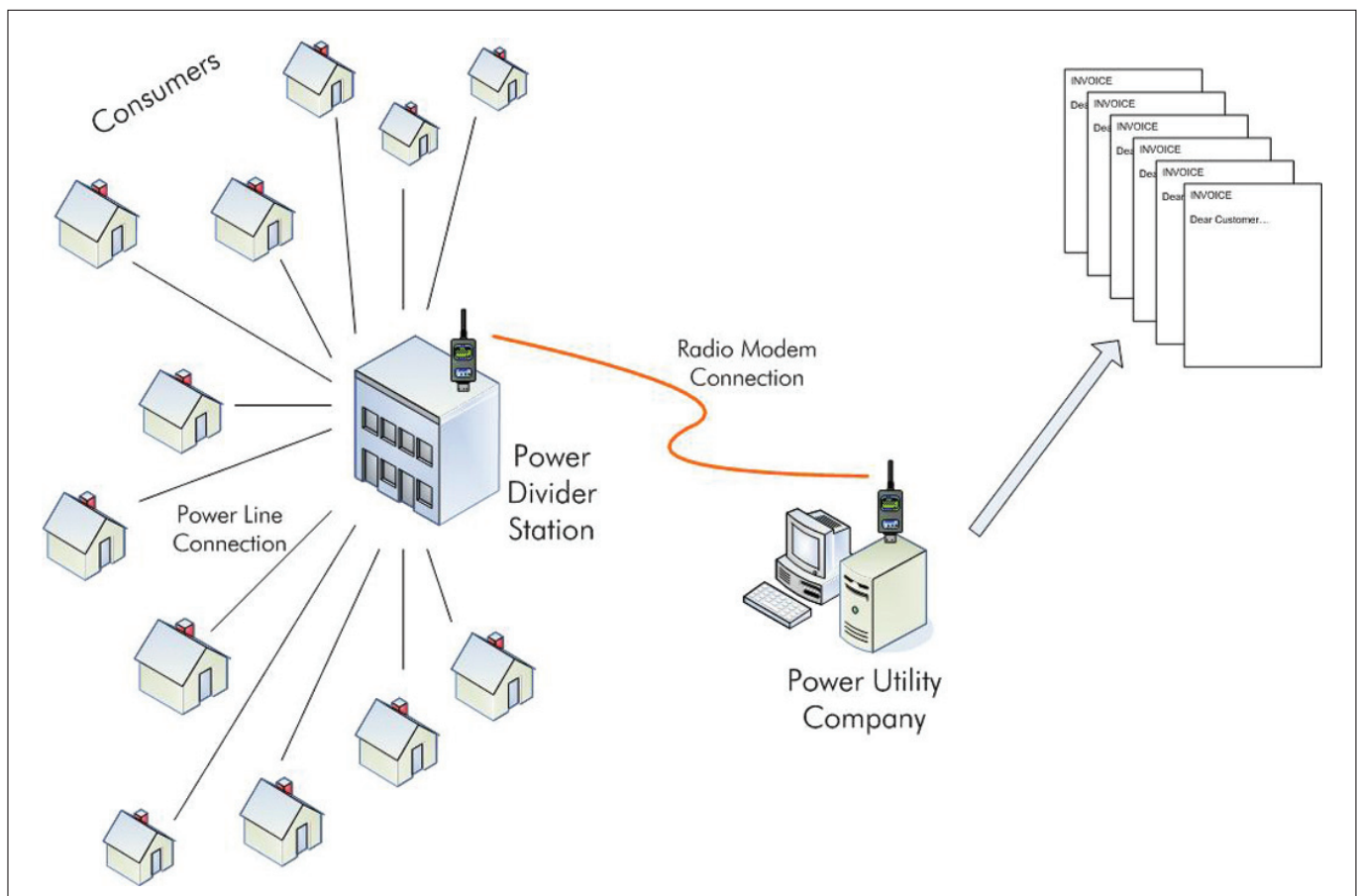




# APPLICATION NOTES FOR SATEL RADIO MODEMS

SATEL AN 21

## SATELLINE Boosts Automated Meter Reading



*Some 10 years ago, the Swedish utility company Vattenfall adopted a policy of replacing manual power meter reading by automated techniques. Wireless communication through the SATELLINE plays a central role in this development process.*

The power meters of a group of individual consumers are generally connected to a local power divider. The meter readings are transferred to the power divider station by using an established power line communication technique. At the power divider, the meter readings are recorded on a computer log.

But how to transfer the data further up the system?

Power line communication is not an option due to changes in line topology. Installing phone lines is too costly. Since many power dividers were built somewhat aside of such infrastructure, it would also mean that the utility company would have to rely on operators for their communication. Another method, the GSM, was dropped for the same reason.

At the same time the companies that had developed the power line communication, were looking for a viable solution, and came up with the idea that having your own AMR (Automated Meter Reading) infrastructure would be the safest and most econom-

ical method of communication over the years. The answer then was quite obvious - a wireless network would do the job.

### **SATEL equipment passes the test**

When shopping around for suitable equipment, SATEL was one of the manufacturers of wireless data transfer equipment, which had a product that was chosen for further tests. During the extensive test period the SATEL radio modems showed their reliability and ease of use. Vattenfall then decided to build a test system including about 600 SATEL radio modems covering an area where some transmission distances exceed 20 km. The radio modems were installed in 1996, and they are still operational.

The local logging computers located at the power divider stations are connected through a serial interface to SATELLINE radio modems. Once a day, a request for power meter readings is sent through the SATELLINE from the base computer located at the district office of the utility company. In the future, the polling frequency will most probably be once an hour.

Data from the power meter is collected at each consumer location, which could be – and will be in the future - anywhere in Sweden. The connection distances covered by the SATEL radio modems vary from a couple of hundred meters to some 30 – 40 km. Some power companies in the northern parts of the country report distances even well beyond that.

The first test system was built with

SATELLINE-2ASx. Today the versions 2ASxE and 2ASc are widely used, and there are intentions to use the SATELLINE-3AS with NMS functions in the future.

### **Dependability brings more business**

The first test system has about 600 substations. The area covered is about 50 x 30 km, which means that some substations must be also be used as repeaters. The number of radio modems so far delivered for AMR in Sweden exceeds 10 000 units.

Vattenfall's AMR reading systems are growing all the time, and all Sweden must have AMR in the year 2009. There are many different suppliers of wireless AMR communication today. SATEL radio modems are widely used to bridge the gap from a power divider to the base station at the district office of the utility company.

The data that is gathered is used as grounds for the consumer's next utility bill.

The consumer has available billing information almost in real time, and can at any time influence in his or her power consumption.

As the building investments of a SATEL wireless communication system are low, and the operating cost practically negligible, the utility company saves both time and money.

One of the major requirements set by Vattenfall was reliability and functionality. SATEL radio modems prove their reliability every day, and the equipment also meets the demand of long life time.



**Manufacturer:**

SATEL OY, Meriniitynkatu 17, P.O.Box 142, FI-24101 SALO  
Tel. +358 2 777 7800, Fax +358 2 777 7810, E-mail info@satel.com  
www.satel.com