

RFID May Reduce Electricity Theft

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August 20, 2002 -- Electricity theft is a problem all over the world, and utilities have been struggling to find ways to combat it. They may have found a new weapon in the war against cheats: RFID.

Mikoh Corp., an Australian provider of tamper-proof seals and other security solutions, has revealed that its U.S. unit is working with Invensys Metering Systems to secure residential electricity meters. The technology would allow utilities to determine from a remote location when a meter has been broken into.

The meter application represents a new market for Mikoh's Smart&Secure seals, which have an embedded RFID tag with encrypted data. Up to now, the seals have been used mainly to secure physical assets. Mikoh has been working on pilots with at least two federal government agencies of the U.S. to secure documents and electronic equipment, including laptops and handheld computers.

The opportunity to apply the technology to the utility industry began in Mexico, where electricity theft is a major problem. Mikoh's seals were used in a pilot to secure conventional meters. The company realized there was an opportunity to apply the same technology in the U.S. utility market, where theft costs utilities billions of dollars per year in lost revenue.

Mikoh approached Invensys, one of the leading makers of electricity meters. Invensys agreed to incorporate the technology into its iCon solid-state residential electricity meter. The two companies plan to build a prototype, which they will unveil in mid-October at the Edison Electric Institute's Fall Distribution, Metering & Transmission Conference in Salt Lake City.

The key for the U.S. market is to make it possible to detect tampering remotely. New solid state meters, which are replacing the conventional meters with dials and wheels, have an automatic meter reading (AMR) module. These allow the utilities to get information from the meter from a central station or from a truck using wireless technology.

Approximately 17 million of the 125 million electricity meters installed in the United States last year had AMR modules. Industry groups estimate that by 2004 the number of AMR-equipped meters within the US will top 38 million.

The utilities like the new meters because they reduce the need to employ an army of meter readers. But the meters also make it harder for the utilities to detect tampering because staff physically inspect the meters only infrequently. The AMR modules can detect if someone tries to use magnets or other technology to rig the meter, but the utilities often have to figure out whether there has been a false tampering signal.

"They get a lot of information back [from the AMR modules], but they have to cull through it to find out what might be a real physical tampering," says Marc Joseph, VP of sales and marketing for Mikoh US. "It's not always economical to send people out to see if something really has been done. Smart&Secure will enable them to get true physical tamper protection."

Mikoh is developing a miniature, low-cost, 13.56 MHz reader that will plug into a circuit board in the meter and communicate with the AMR module. Seals with passive RFID tags will be placed on the meter and box at the points where they could be opened. The utility will be able to read data from the seals at regular intervals to detect when a meter has been tampered with.

Mikoh and Invensys will launch a joint marketing program that to promote the iCon Smart&Secure meter and its cost-control advantages. "The utilities are excited about this technology," says Joseph. "They are the ones who will drive this because they have the theft problem."

Invensys will buy RFID readers from Mikoh to incorporate into its iCon meters, which will be sold to the utilities. Mikoh will sell the labels to the utilities. Each time a box is opened so a meter can be repaired or serviced, the utility will put a new label on it. Mikoh is also targeting other industries where it is critical to secure the contents of a container or ensure the authenticity of an item.

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