New RFID Tag with More Memory

Maxell is introducing a series of RFID tags, aimed at the medical and pharmaceutical industries, that have 1, 2 and 4 kilobytes of memory.

Aug. 25, 2003 - There are two schools of thought in the RFID industry. One is that the tag should be merely a license plate that identifies the item and related information that's stored in a database. The other is that the tag is a database that travels with the item. Maxell Corp. of America has come down firmly in the latter camp.

The Fair Lawn, N.J.-based company—a subsidiary of Tokyo's Hitachi Maxell, which sells memory, storage and security technologies—has introduced the ME-Y2000 Series, a group of read-write RFID tags with more memory than the company's ME-Y1001 tag, which held 128 bytes. The three new ME-Y2000 tags, by comparison, hold 1 kilobyte, 2 kilobytes and 4 kilobytes of data.

The chips in the ME-Y2000 tags are the same size as the older version, 2.5 mm by 2.5mm, and like the older version, they have a built-in coiled antenna. Because the chip doesn't have to be attached to a separate antenna—a process that adds to the cost—the ME-Y2000 tags will sell for less than $1, according to Rumi Kititate, Maxell's product and marketing manager for new product development.

The downside of putting the antenna right on the chip is the small size of the antenna restricts the read range to just 1 mm to 3 mm (.04 to .1 inch). But there are some applications where read range is not critical. Maxell plans to market the tags, which will be available in the fourth quarter, primarily to the medical and pharmaceutical industries.

"We have developed a test tube management system," says Kititate. "This is a hot market. Our advantage is the ME-Y2000 doesn't require an external antenna to communicate so the chips can be mounted under the test tube."

The tiny, self-contained tag is mounted on the bottom of the test tube, and a reader is placed inside a rack that can hold 20 or 30 test tubes, so the RFID tag is extremely close to the reader. A researcher can pick up the test tube and identify it using the 32-bit serial number stored in the chip. He can write new data to the tag, such as what reagent was added to the mixture in the test tube.

The chips operate at 13.56 MHz, using a proprietary protocol developed by Maxell. They feature blocks of memory that can be locked and also have 16 bits of "countdown" data. If the RFID tag is use in a smart card, for example, electronic funds could be stored in the countdown portion of member. Each time a person waves the RFID card by a reader to pay for, say, a bus ride, the funds are subtracted from the countdown memory on the card.

Maxell has also introduced a new line of portable readers that can be connected to a PC via a universal serial bus, RS232 or UART serial connection. The readers sell for between $50 and $250. Maxell is marketing the new RFID tags and readers systems primarily in Japan and the United States.

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