

Precisia Launches FleX Wing Tag Antenna

The printed electronics manufacturer says its new printed UHF RFID tag antenna lowers RFID tag costs and performs equally well regardless of frequency or protocol.

By Claire Swedberg

Sept. 9, 2005—Printed electronics manufacturer Precisia has developed a printed UHF RFID antenna intended to lower RFID tag costs and add frequency and protocol versatility. Known as the FleX Wing, the antenna measures 3/4 inch by 1 1/2 inches and can be used in RFID tags based on the Class 1, Class 0+ and Gen 2 EPC protocols. This antenna operates in any UHF RFID frequency, according to the company, including the 868 MHz band used in Europe and the 916 MHz band used in North America.

Unlike traditional etched copper and aluminum antennas, the FleX Wing is made with a fine layer of conductive ink printed on a PET plastic film. Precisia's sales and business development manager, Jason Brewer, says that by using printed antennas rather than traditional etched copper and aluminum antennas, "we see a cost savings of 50 percent."

Depending on the needs of the end user, Precisia provides three separate formats for the FleX Wing: as a printed antenna that can later be attached to an RFID chip to create an inlay, as part of an inlay manufactured by one of Precisia's partners or as part of an RFID label converted by a Precisia partner.

A subsidiary of Flint Ink, Precisia formulated and manufactured the conductive ink and designed and created the prototype for the FleX Wing, says Brewer. Precisia also manufactures the FleX Wing at its own facilities. Precisia can print the antennas at a rate of about 200,000 per hour.

To create inlays and smart labels, the company works with such partners as RF Identics, which manufactures RFID tags. RF Identics is now using FleX Wing printed antennas to create passive UHF inlays with a read range up to 20 feet. According to RF Identics' president, Gary Burns, the labels RF Identics provides must be almost 100 percent error-free—something he says he is close to accomplishing with FleX Wing.

"We are zealots about quality," says Burns. "With our background in automation, we can accept zero defects. The tags have to perform—that's been our challenge."

The FleX Wing, Burns says, offers the flexibility needed by end users that ship their products internationally. Using tags made with the FleX Wing printed antenna, says Brewer, companies can apply printed labels able to operate in both the United States and Europe. In that way, Burns adds, an end user's employee can read the tags anywhere around the world.

"The design of the antenna and the way the product is tuned is what makes the offering compatible for use with 868 MHz in Europe and 915 MHz in the United States," Brewer explains. The other advantage, he adds, is that customers such as label manufacturers can upgrade from Class 1 or Class 0+ to Gen 2 without buying new antennas—just new silicon chips. This makes the FleX Wing the only commercially available printed antenna that offers such flexibility, Brewer says.

According to Burns, his firm has achieved a low-cost and high-performance product by using the FleX Wing system, bringing the cost of RF Identics' labels down to about 20 cents per label in high-volume (a million or more) use.

The FleX Wing is not the first printed RFID antenna from Precisia, which has been printing antennas for about 18 months. The firm offers designs for pallet, case, baggage handling, pharma and item-level tagging. The inlays range in size from 90mm by 90mm to as small as 15mm by 35 mm.

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