



## ThinFilm OpenSense™

Built on NFC Barcode™ Technology

Enhanced product security and rich consumer engagement – all in one smartphone-readable label.

### **OpenSense tags deliver thin, flexible, cost-effective protection with significant improvements over traditional NFC and RFID-based authentication.**

Existing wireless authentication methods suffer from serious limitations. Some require expensive, proprietary readers that limit the scale of deployments. Others intentionally destroy the antenna when a product is opened, making it impossible to interact with the product after opening.

ThinFilm's proprietary and patent-pending OpenSense technology overcomes those limitations by providing smartphone-centric NFC readability before and after product opening. Together with the economic benefits and scalability of printed electronics, the OpenSense solution enables protection of a wider range of products than feasible with expensive solutions based on complex encrypted ICs.

Unique identifiers within each ThinFilm OpenSense tag support applications fighting product diversion, counterfeiting, unauthorized refills, and the use of forged containers. Brand manufacturers and trusted suppliers can identify if a seal has been broken anywhere along the supply chain, while a secure cloud database tracks product lineage and provides robust analytics to enable smart business decisions.

On the consumer side, brand marketers can benefit from enhanced consumer engagement capabilities, beginning at the point of sale and continuing beyond the point at which the product is initially opened. Dynamic mobile content can be customized and delivered based on "sealed" or "opened" status. In addition, information about when a package has been opened can give brand owners the intelligence necessary to encourage frictionless reorders and promote sales of complementary products.



## Thinfilm OpenSense™

### Markets & Applications

- ▣ Wine and spirits
- ▣ Cosmetics
- ▣ Pharmaceuticals
- ▣ Automotive parts
- ▣ Health and beauty care
- ▣ Fashion and fragrance
- ▣ Mobile marketing and advertising
- ▣ Interactive packaging
- ▣ Anti-counterfeiting and anti-diversion monitoring
- ▣ Physical-to-digital and offline-to-online campaigns

### Key Specifications

- ▣ 13.56 MHz High Frequency (HF) operation for compatibility with fixed and mobile NFC readers, from smartphones to industrial readers
- ▣ 128-bit Read Only Memory (roadmap to 256 bits)
- ▣ Adheres to subset of ISO 14443 Type-A RFID standard
- ▣ 106 Kbit/sec data transfer, Manchester bit encoding and OOK load modulation at 847 kHz
- ▣ 16-bit CRC for data integrity verification
- ▣ Can be combined with tamper evident adhesives and label facestocks to increase security for packaging applications

### Features & Benefits

- ▣ Uniquely identifiable NFC tags can be integrated into everyday items, including consumables and their packaging
- ▣ Unique identifiers and sensor data readable by NFC Barcode™-compatible smartphones, tablets, and industrial readers
- ▣ Tag senses the 'sealed' or 'opened' state of the product or package and wirelessly transmits status information along with the tag's unique identifier
- ▣ To thwart cloning, tag memory is completely and permanently encoded at the Thinfilm factory and cannot be electrically modified
- ▣ Interactive mobile content can be customized based on sealed/opened status
- ▣ Can be connected to a secure database to track product lineage, provide analytics
- ▣ Highly efficient, streamlined Tag-Talks-First (TTF) technology enables faster product manufacturing and packaging line speeds
- ▣ Passive operation; tag does not require a battery
- ▣ Thin, flexible form factor compatible with a wide range of products and packages
- ▣ Supported by the latest NFC controllers from leading manufacturers
- ▣ Supported by Android 4.2 and later