

RFID smart electronic seal

smart products from COMEX



RFID Technology

Radio Frequency Identification technology becomes omnipresent in multiple branches of our everyday life. Besides well known applications in access control systems, work time cards and logistics, more and more often RFID technology is used for goods identification at different levels – from pallets and collective packages to unitary products. Despite unique product identification RFID technology forms proven protection factor against copying and counterfeiting attempts.

RFID seal

UCODE G2iL+ designed and manufactured by NXP, according to EPC Gen2, uses supplementary „tamper” loop as circuit protection indicator.

Combining the functionality above with dedicated design of antenna manufactured in RFID.ON technology resulted in creation of the electronic seal or excise duty label.

Today, we present two labels based on UCODE G2iL+ with tamper protection loop.

Paper label with Fiona Tamper antenna (35x77 mm) designed for identification and authenticity confirmation of cartoon boxes, paper packaging, plastic bottles and caps etc.

Foil labels (100x150 mm) based on Freya2 Tamper antenna, designed to authenticate and protect bigger object and due to special precuts suitable for on-metal application. Communication part of the label forms winglet while protection loop is applied to the surface of the material. Additional precuts make the label being sensitive to any attempt of counterfeit,

detach or reuse.

RFID technologies applied

- RFID.ON printed antenna
- antenna shape with tamper protection loop
- chip NXP UCODE G2iL+

Printing technologies applied

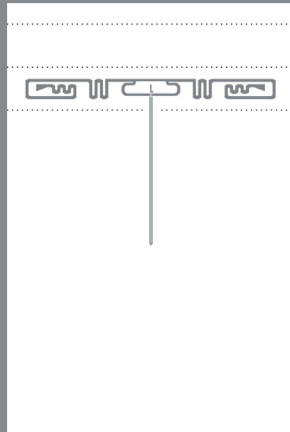
- offset, flexography, digital printing
- unique set of precuts

RFID seal label use

- seals, excise duty label

From the concept to the product

All the manufacturing stages from graphical design of the label, antenna design, testing and approving, printing, chip and adhesive application are performed under one roof in COMEX.



Freya 2 Tamper
dimensions: 100x150mm



Fiona Tamper
dimensions: 35x75mm

NXP UCODE G2iL+ IC

UCODE G2iL+ IC properties:

- UHF RFID Gen2 complying with EPCglobal v1.2.0, EPC memory of 128 bits
- Wide specified temperature range: 40 °C up to +85 °C
- Tag tamper alarm
- Integrated Product Status Flag (PSF)
- Digital switch

RFID antenna

Designed for perfect electric matching with UCODE G2iL+.
Manufactured in RFID.ON technology, flexo printed with nano-silver inks.

Programming and tamper detection

EPC memory data is read from 20h-9Fh address area. 64th byte of EPC memory contains the information on loop status. While secured – first bit is set to “1” thus entire byte having value of: 80h. Once the loop is broken first bit is set to “0” setting the value of flag byte to: 00h.

Information on tamper loop status is available directly from EPC memory.



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