



## SENSOR PATCH

### Moisture Level Sensing Inlay

SMARTRAC's state-of-the-art SENSOR PATCH broadens the company's inlay and tag product range for passive sensor inlays. It is specially designed to measure moisture conditions in medical care areas, e.g. geriatric care, long-term medical care and childcare.

The SMARTRAC SENSOR PATCH is a passive UHF inlay equipped with RFMicron's Magnus®S2 IC. This RFID sensor inlay offers great performance, and accurately detects urine levels in the diaper. The specific antenna design acts as a resistor/inductor/capacitor (RLC) tuned circuit to enable an antenna to sense its environment. The antenna converts environmental data into an impedance change, and then the sensor tag IC translates this into a sensor code, as it dynamically matches antenna impedance to die impedance. The sensing information is digitized and wirelessly communicated to off-the-shelf readers using a standard UHF Gen 2 protocol READ command for further processing by caregivers.

The innovative SENSOR PATCH is a disposable, UHF, single-chip sensor inlay solution that offers cost efficiency, is easy to implement, and works on different textiles, pulps and nonwoven materials. The inlay is attached outside of the diaper to avoid skin irritation. In industrial diaper production, the inlay can be placed between the diaper's layers to remain invisible to end users.

It is deployable where active or semi-active sensors are not practical, and involves no battery maintenance, costs or problems with product lifetime or recycling. Delivery formats are dry and wet to suit all converting-industry needs, and the inlay complies with all relevant industry standards and strict quality control parameters.

#### Overview

**Operating Frequency**  
860 - 960 MHz (ETSI)

**Integrated Circuit (IC)**  
RFMicron Magnus®S2

**Antenna Size**  
102 × 8.62 mm /  
4.0 × 0.4 in

**Die-cut Size**  
105 × 11.62mm /  
4.1 × 0.5 in

#### International Standards

▶ EPC Class 1 Gen 2  
v.2.0.0 ISO 18000-6C

#### Application Areas

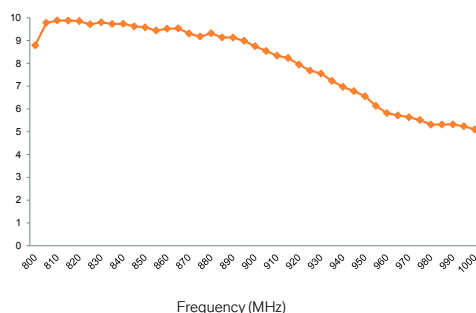
- ▶ Geriatric care
- ▶ Medical long-term care
- ▶ Childcare

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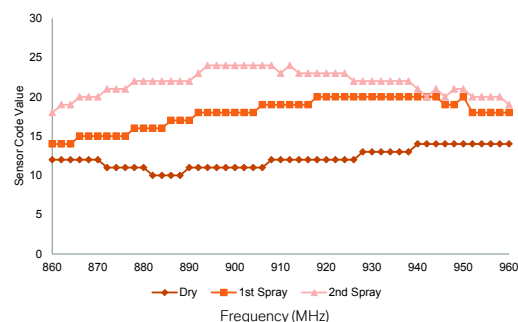
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Technical Features			
<b>IC + Memory</b> RFMicron Magnus®S2 128 bit EPC + 144 bit user memory	<b>Size</b>	<b>Format</b>	<b>Sales Code</b>
	102 × 8.62 mm / 4.0 × 0.4 in 105 × 11.62 mm / 4.1 × 0.5 in	Dry Wet	3005422 3005424
Frequency	860-960 MHz (ETSI band)		
Antenna Size	102 × 8.62 mm / 4.0 × 0.4 in		
Die-Cut Size	105 × 11.62 mm / 4.1 × 0.5 in		
Web Width	110 mm / 4.3 in		
Operating Temperature	-40 °C to +85 °C / -40 °F to +185 °F		
Adhesive	RA-2		
Qty/Reel	2.000 pcs		
Core Size	76 mm / 3 in		
Shelf Life	+20 °C, 50 % RH / 68 °F, 50 % RH - minimum 2 years from the date of manufacturing		

Read Range in Plastic (m)



Sensor Patch Frequency vs. Sensor Code Value



All the graphs are indicative: performance in real life applications may vary. The data has been determined based on calculations for transmitters with a 2W ERP output power level.

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