

New Passive Sensor Tag Identifies Water Leaks in Vehicles, Ships and Planes

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AMSTERDAM, THE NETHERLANDS, November 30, 2015 /EINPresswire.com/ -- Leaks inside cars will soon become a thing of the past, as Smartrac launches the first-ever passive water sensor tag that works on metal surfaces such as the harsh environment of an automobile chassis. The solution ensures that cars leaving the factory are completely watertight, and may also find applications in aviation manufacture and shipbuilding.



Smartrac Sensor Tadpole

Smartrac has teamed up with chip manufacturer RfMicron to develop [Sensor Tadpole](#), a UHF sensor tag that is deployed on cars during assembly, and used to detect small amounts of water leakage inside vehicle compartments that can damage a car's electronics bays, cabins and trunks. The sensor tag features RfMicron's Magnus S2 Sensor IC with its patented Chameleon™ technology, which can be used to sense moisture or pressure.

As more and more hybrid and electric cars are produced that require enhanced protection for their electronic circuitry and electrical components, identifying water ingress in these critical areas is becoming ever more important for manufacturers. Window seals, weather stripping and body seams are the primary causes of factory water leakage.

Smartrac's Sensor Tadpole is an on-metal passive sensor tag designed to work on metal surfaces, with minimum signal degradation from surrounding structures. The tag has a strong adhesive and small, slim form factor, which makes for easy deployment on difficult surfaces. The detection area can be extended by using a wicking tail, which guides moisture to the sensor tag. This allows even minute amounts of water to be detected quickly, easily and reliably, allowing manufacturers to identify the source of a leak. Sensor Tadpole is deployed in the manufacturing flow as part of the automobile's assembly process.

"The use of RfMicron's Magnus® S2 Sensor IC enables a reliable alternative to today's manually intensive and error-prone water intrusion testing process, resulting in an automated, cost-effective, scalable moisture-sensor solution" said Shahriar Rokhsaz, RfMicron President and CEO. "The benefits of the sensor solution are cost savings, faster and more accurate water intrusion detection, and improved customer satisfaction as vehicles that escape factory water-intrusion testing result in significant field repair costs and cause irreparable damage to a manufacturer's reputation."

Batteries not required

The use of a passive sensor means that the tag requires no power supply, servicing or replacing. Sensing capabilities are supplied without the need for batteries or an external power source, because the IC harvests UHF energy from a hand-held reader or optionally from a gate reader, which scans vehicles as they pass through the final quality-check areas of the factory production line.

The tag's antenna transforms environmental data into an impedance change, and the tag IC translates this into a 5-bit sensor code, as it dynamically matches antenna impedance to die impedance.

Lauri Hyytinen, Head of Segment Automotive, Business Division Intelligent Things at Smartrac, said "We designed Sensor Tadpole as a low-cost solution to the challenge of water-sensing applications in high-volume deployments, and decided to use RFMicron's Magnus S2 Sensor IC because it offers extremely stable performance over an unlimited lifetime. Future applications for Sensor Tadpole could include many more industries, where monitoring water ingress levels is of obvious importance."

First deployment already on the road

The first commercial deployment of Sensor Tadpole is already being piloted. Project-managed by automation partner Turck, a German OEM is successfully testing the passive sensor tag in high-end cars to ensure that they leave the factory watertight.

Walter Hein, Business Development Manager RFID at Turck, stated, "Smartrac's Sensor Tadpole and Turck's RFID System BL ident are an ideal solution to the problem of sensing water levels inside metal structures, so we chose the automotive industry for a first pilot scheme. Car manufacturers want to ensure that their vehicles' passenger cabins, trunks and electronics bays are completely watertight before they are sent out to dealerships, and this innovative sensor product does the job perfectly."

The new tag can be delivered pre-encoded if needed. Furthermore, the unique TID, EPC and sensor code offer the opportunity to manage and collate the information received from the sensor tag using Smartrac's [Smart Cosmos](#) Cloud-based services platform, which is of high interest to manufacturers wishing to track the performance of components, or to improve quality management.

Sensor Tadpole tag is available in white wet singulated format, and with a die-cut size of 21.5 x 73.0 mm, either as a standalone tag, or with different tail options. Suiting all converting-industry needs, the tag complies with all relevant industry standards and strict quality control parameters.

Learn more about the new Sensor Tadpole tag and discover Smartrac's innovative RFID solutions live at the upcoming conference ODETTE 2015, booth #9, November 30 – December 1, Holiday Inn City Centre, Munich, Germany.

About RFMicron:

RFMicron produces ICs that enable a new class of low-cost, wireless, microcontroller-free, battery-free sensors. These autonomous chips incorporate RF energy harvesting and sensing circuits that detect and respond to a variety of environmental stimuli. These sensors provide the economies of scale necessary to drive pervasive deployment into very-high-volume applications, e.g. for the automotive, construction, energy and healthcare industries. www.rfmicron.com

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About Smartrac:

Smartrac is the world's leading developer, manufacturer and supplier of RFID products and services, providing both ready-made and customized products and services suitable for a large number of applications. Smartrac makes products smart, and enables businesses to identify, authenticate, track and complement product offerings. Leveraging its global R&D, production and sales network, Smartrac combines physical products with its Internet of Things platform Smart Cosmos, empowering the ecosystem of connected things. The company's solution portfolio is used in a wide array of applications: access control, automated fare collection, automotive, border control, contactless payment, electronic product identification, industry, libraries and media management, logistics, retail, public transport, and many more. Smartrac has its registered headquarters in Amsterdam, the Netherlands.

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