



HF RFID enabled Sensors now available for use in Hospitals and Healthcare

The recently released ANSI/HIBCC 4.0 standard, created by the Health Industry Business Communications Council provides guidance for use of item/package level data formatting for product identification plus recommends high and low frequencies for individual passive RFID tags in hospitals and healthcare settings. Now healthcare systems integrators and original equipment manufacturers can use new systems that combine HF RFID with sensors.



Besides the concern that improperly tuned passive UHF systems could interfere with sensitive equipment, 13.56 MHz High frequency (HF) RFID provides a secure proximity read – ensuring 100% accuracy on reads that simply can't be achieved with active UHF. HF also provides superior performance on/around liquids and tissues. HF RFID ensures that matching tags to medical equipment and devices does not require complex anti-collision algorithms.

However, besides monitoring of identification, healthcare applications and in particular, pharmaceuticals, sensors are used for monitoring of a variety of parameters like temperature, humidity, IR and shock for temperature sensitive materials and equipment. However, those sensors are either hardwired or add to the background EMI with wireless interfaces. With a sensor IC that communicates with passive HF RFID, sensors can be read with desktop or handheld units or draw power from OEM equipment.

The following illustrates an application where HF RFID enabled sensors make sense in the healthcare supply chain. Current data loggers commonly used for in transit temperature monitoring of pharmaceuticals typically require each unit to be plugged in individually to download data via USB to a PC. Further, these data loggers are typically sent back to the point of origin for the data upload and analysis. With proposed revisions to U.S. Pharmacopeia <USP 1079>, Good Storage and Shipping Practices firms may be required to report on the effect and potential remediation to temperature excursions within 24 hours. Under the new proposed guidelines, the time to ship the data loggers to a central location for data upload creates an unnecessary burden on those charged with interpreting and acting on that data.



To improve monitoring processes and meet ANSI/HIBCC 4.0 and <USP 1079>, Proxima RF has partnered with sensor leader Melexis to create a passive HF –enabled resistive sensor and reader. The Melexis MLX90129 is a sensor transponder IC that combines a precise and programmable interface for external resistive sensors that can be used for a wide variety of sensing applications.

What makes this sensor transponder unique is its unusually low power and voltage draw plus the ability to be accessed and controlled through its ISO15693 13.56 MHz high frequency (HF) radio frequency identification (RFID) antenna. There is one internal temperature sensor and two or more external resistive sensor interfaces (depending on configuration) connected via the IC to make battery-less sensing solutions. The read /write “tag” harvests energy from a HF RFID reader to supply a regulated voltage to the other components enabling long term embedded sensing. Adding a simple coin-sized battery enables the standalone data logging mode. The sensor output data is stored in the internal 3.5kbits user memory or can be extended with external memory.

Sensors enabled with passive 13.56 MHz Radio Frequency ID (RFID) can download data direct to the Proxima RF handheld, or desktop reader with NO wires and NO active emitting parts. The combination of HF reads and sensing means that temperature sensitive pharmaceuticals or blood bags, for example, can be tracked in transit and right into the care environment for complete end to end temperature tracking.



High frequency RFID enabled sensors:

- * Provide superior performance on/around liquids
- * Ensure secure proximity reads
- * Can write product ID directly to the sensor "tag"
- * Include multiple sensing elements; temperature, humidity, light and shock
- * Come in data logging and battery-less versions
- * Are easy to calibrate
- * Have a small footprint
- * Can be re-used

The Melexis IC tag can be combined with passive HF encrypted RFID tags for the most sensitive applications – all read with the Proxima RF reader.



How do I create a product with HF RFID enabled sensors?

ProximaRF Technology Corporation and Melexis have partnered to create a unique plug and play, HF RFID enabled sensor development kit so system integrators and product vendors can focus on their cold chain and pharmaceutical applications instead of developing a HF reader.

The kit includes the Proxima RF plug and play USB Desktop reader that comes with a powerful API and evaluation software and development tools, unique to the 13.56 MHz HF RFID industry. The DVK90129 HF RFID enabled resistive sensor development kit also includes an evaluation board from Melexis populated with a temperature, light sensor and potentiometer.

These products are available for sale to end-users, 3PLs, system integrators and suppliers of cold chain or sensor/equipment monitoring software as an extension to their product suites.
About ProximaRF

Proxima RF™ designs, develops and manufactures High-Frequency RFID readers, and reader modules. Designed to read ISO15693 tags, CryptoRF ISO 14443B protocols plus HF RFID enabled Melexis 90129 sensor tags, Proxima RF readers are enabling the next generation of near-field and proximity solutions. ProximaRF enables integrators to create user-friendly proximity solutions with ready-to-ship readers, supporting software, OEM designs and sensor tag modules.



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For further information, please contact:

Terry Rachwalski, VP Business Development
+307.459.1919
info@proximarf.com
<http://www.proximarf.com>

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