**CROSS RFID™**

CROSS RFID is a technology patented by ORIDAO which greatly extends communication range and features of UHF RFID operations.

In a passive tag, the signal coming from the RFID reader is demodulated without any amplification and backscattered by the Tag antenna to provide information back to the reader.

With CROSS RFID the tag amplifies the incoming signals in order to overcome the attenuation from the forward-link and backscatters the signal back through the return-link as for a classical passive RFID communication. Thus, this technology enables «hybrid tags» with communication range up to over 35-50 meters, fully compatible with the EPC Gen2 protocol and its set of commands (selective inventory, memory access, security features...). It also enables M2M and monitoring features thanks to the embedded 32-bit MCU.

Standard UHF RFID reader will therefore simultaneously and in the same way inventory and communicate with passive tags and CROSS RFID tags at a longer distance. Same standard hardware, same middleware and a single interface with information systems, no matter the range of the identification and location needs for manufacturing, supply-chain or retail traceability.

Simpler integration, simpler operation and instant compatibility with existing ISO 18000-6C infrastructures, for Identification, Localization, Data Exchange and Monitoring, at short and long distance.

**FEATURES**

- Full EPC UHF Gen2 compatibility
- 32-bit microcontroller
- 8KB of EPC User Memory
- 64 KB Flash Memory
- 16 KB RAM
- SPI, I2C, UART digital interfaces
- Dedicated analog sensors interface
- Localization applications: Tag RSSI
- Battery management: Battery status
- Authentication, data encryption and integrity
- ATEX environments compatibility

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APPLICATIONS

IDENTIFICATION & LOCALIZATION
Continuity of short and long distance identification, smart content and interoperability:

- Assets lifecycle is securely stored, authentication of the tracked data
- Mutual Tag/Reader Authentication
- Proof of integrity of lifecycle data stored in the tag memory
- Indoor and outdoor localization of assets and people

MACHINE TO MACHINE
CROSS RFID supports multiple bus protocols, allowing local physical connection and secure data exchanges between RF infrastructure and smart systems:

- Instant long-distance pairing - smart tolling of high speed vehicles, high-speed data exchanges between vehicles and infrastructures...
- Smart record generation and management by the Tag itself, merging data from various sources
- Mutual authentication, data encryption and integrity of exchanged data
- Configuration management and maintenance of racked systems (PLC, VSD, calculators)...
- Augmented Reality and instant interaction with connected devices or sensors

SMART MONITORING
High-speed pairing combined with long distance and enhanced functional for smart monitoring use-cases:

- Power transmission monitoring (vibration, strain...)
- Structural health monitoring (corrosion, temperature...) 
- Industrial process control (pressure, Ph, level....)
- Instant access to multiple sensor measurements by passing-by vehicles or flying-by drones

ABOUT ORIDAO
Since 2008, ORIDAO has built a comprehensive range of RFID products for industrial wireless identification, data exchange, monitoring and smart metering. ORIDAO solutions address the growing industrial requirements for process visibility, smart and instant access to field data. They allow reduction of unplanned downtime, yield improvement and rationalization of support functions.

CROSS RFID technology is available through ORIDAO’s product lines (Modules & Tags). ORIDAO also licenses the CROSS RFID system building blocks (RF ASIC and Software development environment) for integration within manufacturers’ connected devices, tags and wireless sensors.

ORIDAO also proposes a development kit for customers willing to evaluate the technology and easily develop functional demonstrators.