Automotive Moisture Intrusion Portal Detection System

Watching profits leak away is painful,
So catch leaks before they leave the line.

Vehicle assembly is harder than it looks -
You’ll contend with materials, glues, ever-changing accessory components and human driven processes. Water has an amazing ability to find missing plugs or poorly adhering glues. Even with 100% vehicle rain testing, these leaks can be hard to detect. Up to 3% of vehicles ship from the factory with leaks that will likely lead to mold growth and costly warranty repairs.

New portal finds the leaks, and keeps the line moving -
Drive-through portal flags the leaks by location to speed rework and fewer inspection escapes. Get ahead of the issues with real-time reporting and insights. Thin, wireless, and battery-free RFM2110 Moisture Sensors use Smart Passive Sensing™ to find leaks fast. Data from the system positively identifies any leaks by location and builds a collection of data to help automakers find the root causes large and small that trigger these leaks in the first place.

Includes:
Portal hardware
RF readers
Processing consoles
Comprehensive software

ORDER:
RFM5126 for the portal system
RFM2110 for sensors
Water is a surprisingly power tool

Automakers can already detect the major assembly defects and leaks which tend to be visible, but they have great difficulty detecting small leaks which cause damage over an extended period of time.

Statistics show that up to 3% of vehicles ship from the factory with leaks that will lead to mold growth and costly warranty repairs. The RFM5126 Moisture Intrusion Detection System accurately identify these leaks with less cost and labor impact versus traditional and less effective methods.

Vehicle assembly is a complex process involving a range of materials, glues, changing components and human-driven processes. Even with the best traditional efforts, small leaks can go undetected during manual inspection procedures. These leaks may allow enough water into the vehicle over time to cause mold growth and potential damage to expensive electronics modules and components.

RFM5126 Moisture Intrusion Detection

The RFM5126 Moisture Intrusion Detection System uses battery-free, wireless sensors to detect in-vehicle water leaks caused by incorrect assembly. Detecting leaks and assembly issues before a vehicle leaves the factory is critical to improving outgoing quality and to avoiding customer warranty issues.

The new automated leak detection system fits over the moving the production line, and significantly lowers the leak detection thresholds to catch even the smallest of leaks.

The unobtrusive, battery-free, wireless sensors are installed on the vehicle chassis at the bare metal stage before installation of the interior trim and seats. After completing all assembly, vehicles move through a high-pressure water spray test where the system flags any small, hard-to-find leaks. Drive-through portal stations facilitate communication with the sensors. The portal stations incorporate comprehensive sensor monitoring software that reports specific leak locations, helping to speed the rework process.
System Hardware & Features

**Hardware Components**
The RFM5126 Moisture Intrusion Detection System includes all system hardware, structural components, and computing equipment needed to implement a complete automated leak detection system. The system is constructed with industrial-grade electronics and protected within water-tight enclosures. As challenging as high-pressure spray tests be on vehicles, it can be equally challenging for unprotected electronics. The system hardware includes:

- Pre-wash operator station
- Post-wash touchscreen control console
- Fault-tolerant servers and processors
- Redundant data storage & Ethernet network
- Industrial grade electronics and NEMA enclosure
- Portal structures
- UHF Readers and antennas
- Handheld sensor scanners
- Barcode scanners

**Software Features & Support**
Comprehensive system software manages all data collection, data validation, storage, and processing. System features include:

- Pre-wash and post-wash portal support
- Single drive-in, back-out portal support
- Handheld sensor reader w/ barcode scanner
- System managed VIN and sensor data linkage
- Real-time wet/dry analysis
- Console display of leak locations
- Manual/operator rework instructions
- Data retention local to the console station
- Data connection to OEM quality network

Vehicle monitoring data can also be sent directly to the automakers’ quality management database. Accessing leak data is essential to deeper vehicle inspections and analyzing relevant trends.
Finding a leak is just the start
It takes data analysis to identify the cause

The right technology
The traditional methods place paper cording around the interior, or they employ labor-intensive manual probing methods. These were once the best approach, but water has a tendency to collect in hard-to-reach areas. New technology like the surprisingly thin RFM2110 wireless sensor, is placed directly on the metal chassis under the trim components where water from leaks collects. Leak data is collected wirelessly, and with analysis this data points to root cause.

Finds small leaks
The major leaks are easy to find since they’re visible. Detecting medium and micro leaks is a bigger challenge. Medium leaks allow enough water into the interior to grow mold over time, but they’re hard to detect using traditional methods. The key is the thin RFM2110 employing Smart Passive Sensing™ technology that is very sensitive to moisture. It detects mold-causing medium-sized leaks, and about 60% of micro leaks. Get a handle on leak-related issues.

Improves quality
It’s hard to track quality issues in real time if leaks make it out of the factory for consumers to find months later. An entire class of quality issues are left unaddressed without real-time data analysis. Detecting these hard-to-find leaks on the assembly line gives auto-makers a chance to identify root cause and to make process improvements that strengthen outgoing quality. Avoid costly warranty repairs in the field by solving root cause issues in real time.

See how data gets you ahead of assembly defects!
Visit www.RFMicron.com/moisture-detection

ORDER: RFM5106-A for the basic system, or RFM2110 for sensor refills