INFICON Launches BES4000 Electrolyte Sniffer Leak Detector

Precise Leak Detection for Battery Modules and Packs

INFICON's new BES4000 electrolyte sniffer leak detector is engineered to address one of the most critical quality challenges in modern battery manufacturing: detecting electrolyte leaks after module or pack welding.

LAS VEGAS, NV, UNITED STATES, December 9, 2025 /EINPresswire.com/ -- INFICON, a leading provider of innovative instrumentation, critical sensor technologies, and Smart Manufacturing/Industry 4.0 software solutions, introduces the BES4000, a new electrolyte sniffer leak detector engineered to address one of the most critical quality challenges in modern battery manufacturing: detecting electrolyte leaks after module or pack welding. The system brings a new level of precision and reliability to end-of-line leak testing, ensuring that leaks are found early, accurately, long before they create safety risks or costly warranty issues.

“Customers who want a turnkey leak detection system that will identify electrolyte leaks end-of-line will enjoy not only reduced safety issues but also lower warranty costs,” said Thomas Parker, INFICON’s Automotive Market Sales Manager. “This provides product integrity, supports production speed and also provides peace of mind, knowing that their vehicle’s propulsion battery is robust and durable.”

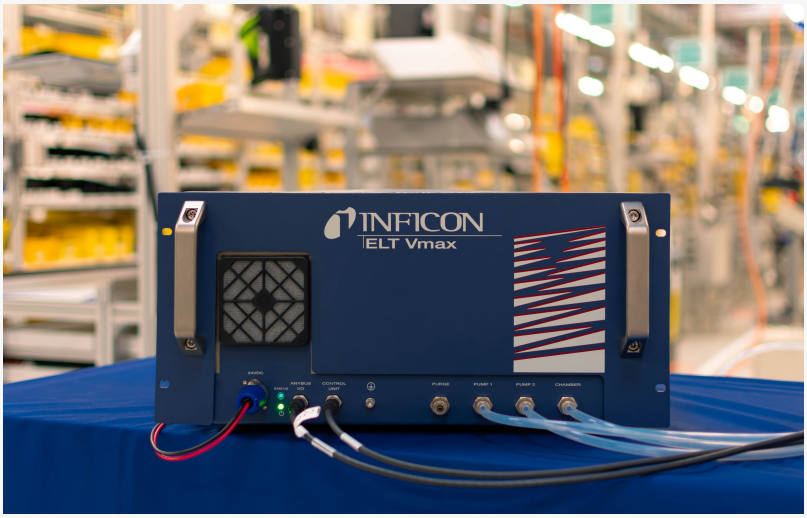
ELECTROLYTE SOLVENT AS THE IDEAL TRACER GAS

The BES4000 uses the dimethyl carbonate (DMC) or ethyl methyl carbonate (EMC) electrolyte solvents already contained inside lithium-ion and sodium-ion cells as a natural tracer gas. Its sensor is highly selective and reacts only to electrolyte vapors, eliminating false alarms from common contaminants such as adhesives or humidity.

PINPOINTING LEAKS AFTER MODULE ASSEMBLY

Welding busbars and interconnects can create new defects in cell housings, even when cells pass initial leak tests. The BES4000 enables precise localization of these leaks:

- Technicians move the sniffer probe along the installed cells.
- The dual-inlet design suppresses background noise.
- LED indicators and a leak-rate trend display guide the user to the exact spot.
- Leaks can be identified with <1 cm spatial accuracy.
- Damaged cells can be quickly replaced, reducing rework time and improving production yield.



The ELT Vmax and ELT 3000 PLUS rapidly test leak-tightness of all types of battery cells regardless of the type of electrolyte including all metal-ion batteries such as lithium-ion and sodium-ion traction battery cells, plus the ability to test semi solid

END-OF-LINE TESTING FOR FINISHED BATTERY PACKS

Most EV battery packs are too large for vacuum-chamber testing, and hybrid packs often cannot withstand negative-pressure testing. The BES4000 overcomes this using accumulation testing. In the test, the sealed pack housing functions as an accumulation chamber in which escaping electrolyte vapors build up over a defined time. A technician using the BES4000 measures at the battery pack's port with high precision for any concentration increase.

> Customers who want a turnkey leak detection system that will identify electrolyte leaks end-of-line will enjoy not only reduced safety issues but also lower warranty costs."
>
> *Thomas Parker, INFICON's Automotive Market Sales Manager*

This allows manufacturers to verify pack integrity without vacuum pumps, heavy infrastructure, or high energy consumption. The BES4000 supports both carrier-gas circulation and single-port negative-pressure setups, offering flexible integration into pack-assembly lines.

If a pack fails the accumulation test, technicians can open the housing and use the BES4000 in sniffer mode to identify the leaky cell.

DRIVING SAFETY, QUALITY, AND SUSTAINABILITY

The BES4000 supports key manufacturing priorities across the battery industry:

- Safety — Identifies electrolyte leaks before packs enter vehicles.
- Quality — Detects defects in late-stage assembly that conventional tests miss.

• Sustainability — Helps reduce scrap and rework, lowering material consumption.
• Cost Control — Minimizes warranty cases caused by electrolyte-related cell failures.
• Future-Ready — Supports large battery packs and emerging cell-to-pack architectures.


Thomas Parker, Automotive Sales Manager, INFICON

PERFECT MATCH WITH ELT VMAX: A CLOSED QUALITY LOOP
In cell and module production, the BES4000 pairs seamlessly with INFICON's ELT Vmax electrolyte leak detector. The ELT Vmax identifies if a cell or module leaks in a vacuum test, and the BES4000 pinpoints the precise location of the leakage.

Together, they create a closed feedback loop that ensures defects are detected early, root causes are found, and production processes remain under consistent control.

OPTIMIZED USEABILITY FOR PRODUCTION ENVIRONMENTS
The BES4000 is designed for high uptime and ease of operation. Its features with benefits include: a color touchscreen with intuitive navigation, a calibrated leak integrated directly into the device, automatic calibration via a simple sniffer-tip insertion, fast recovery after gross leaks, multiple languages for global production lines, the ability to operate under multiple modular interfaces (PROFINET, PROFIBUS, DeviceNet, EtherNet/IP, digital I/O) for seamless factory integration.

A NEW STANDARD IN BATTERY LEAK DETECTION
The BES4000 brings together high sensitivity, selectivity, speed, and ease of use, giving manufacturers a reliable way to detect and locate electrolyte leaks throughout module and pack production. By combining sniffer-based localization with accumulation-based pack testing, the BES4000 closes a critical gap in modern battery-quality assurance.

For manufacturers seeking higher safety, longer battery life, and reduced production waste, the BES4000 sets a new benchmark in end-of-line leak detection.

About INFICON
INFICON is a leading provider of innovative instrumentation, critical sensor technologies, and Smart Manufacturing/Industry 4.0 software solutions that enhance productivity and quality of tools, processes, and complete factories.

These analysis, measurement and control products are also essential for gas leak detection in air conditioning/refrigeration, and automotive manufacturing. Other users of vacuum-based processes include the life sciences, research, aerospace, packaging, heat treatment, laser cutting and many other industrial processes. We also leverage our expertise in vacuum technology to provide unique, toxic chemical analysis products for emergency response, security, and environmental monitoring.

INFICON is headquartered in Switzerland and has world-class manufacturing facilities in Europe, the United States and China, with subsidiaries on three continents.

For more information, please visit www.inficon.com or contact reachus@inficon.com.

###

Media Contacts:
Michael Scholl
Cannell Scholl Communications
michaelscholl628@gmail.com
+1 (248) 885-3145

Severine Grimberg
INFICON GmbH
Severine.Grimberg@inficon.com

Michael Scholl
Cannell Scholl Communications LLC
+1 248-885-3145
MichaelScholl628@gmail.com
Visit us on social media:
LinkedIn
Instagram
Facebook
YouTube
X
