



Ecotec 4000 Multi-Gas Leak Detector

The next level of quick, reliable
and efficient leak detection



 **INFICON**

Minimal effort, Maximum results.

The refrigeration/air conditioning and automotive industries are facing major challenges: Tighter environmental regulations, the shift toward sustainable technologies, and the demand for maximum efficiency are transforming the market.

Refrigerants with lower GWP values and stricter emission limits are setting new benchmarks in the HVAC/R industry. At the same time, the rapid growth of electric vehicles brings new testing requirements in the automotive sector — requirements that can only be met with highly productive, automated solutions.

As a result, robot assisted sniffer leak detection is gaining importance. Demand for robot-assisted sniffer leak detection is rising.

THE ECOTEC 4000 IDENTIFIES POTENTIAL LEAKAGE DURING END-OF-LINE TESTING OF INDUSTRIAL PRODUCTION LINES:

Refrigeration / air conditioning industry

- Refrigerators and freezers
- Refrigeration and air conditioning systems
- Heat pumps
- Cooling systems for computing centers

Automotive industry

- Automatic climate control
- Fuel distribution for combustion engines and natural gas drives
- Cooling circuits for battery and fuel cell drives

Ecotec 4000: Faster. More precise. More efficient.

The Ecotec 4000 is the logical next development of the proved Ecotec E3000:

As the most sensitive multi gas leak detector on the market, it elevates sniffer leak detection in HVAC/R and automotive production to an entirely new level. It offers outstanding selectivity, simultaneous detection of up to four refrigerants, and an expandable gas library with more than 100 gases and refrigerants. Even extremely small R600a leaks — down to 0.05 g/a — are reliably detected. Its advanced technology not only makes leak testing more efficient and user-friendly, but also significantly improves automated testing processes.

STRONG ADVANTAGES FOR SMART MULTI-GAS LEAK DETECTION

- ✓ **Short cycle times**
Fast leak detection in either Optimum Mode (300 sccm) or High Speed Mode (up to 3000 sccm)
- ✓ **High sensitivity**
In Precision Mode (160 sccm), even the tiniest leaks can be detected
- ✓ **Fewer false alarms**
Enhanced Interfering Gas Suppression (IGS) to eliminate alarms due to cross sensitivity and smart Background Canceling to avoid alarms from high background concentrations
- ✓ **Intuitive operation**
Improved iGuide user guidance with new HMI – professional leak detection even for untrained users
- ✓ **Easy integration**
Modern interface communication for fast, reliable data exchange



Maximum performance

Flexible, precise and ready for the toughest production environments.

Use our sniffer leak detection technology to achieve maximum efficiency and unmatched sensitivity in end-of-line testing.

IGS (INTERFERING GAS SUPPRESSION)

The enhanced IGS system prevents false alarms caused by outgassing from insulating foams such as cyclopentane or isopentane.

It suppresses cross sensitivities not only for R600a but also for R290—ideal for mixed production lines and a significant boost in overall efficiency.

BACKGROUND CANCELING

The optional SL4000 BC probe handle significantly improves leak detection of CO₂ (smallest detectable leak rate < 0.3g/a) and also other more common refrigerants by enhancing reliability in environments with elevated background gas levels—reducing false alarms

MULTI FLOW TECHNOLOGY FOR UNMATCHED MEASUREMENT CERTAINTY

- **Precision Mode (160 sccm):** Highest sensitivity at medium speed
- **Optimum Mode (300 sccm):** Very high sensitivity (< 0.2 g/a) with shorter cycle times and ability to detect leaks at hard to access locations
- **High Speed Mode (up to 3000 sccm):** Maximum speed for applications with moderate detection limits (< 2.0 g/a)



QUICK FUNCTION TESTING AND CALIBRATION

The integrated EcoCheck reference leak enables simple, fast, and automatic function and calibration tests—directly at the production line.

IGUIDE

Improved iGuide user guidance on the sniffer probe handle and the main display—guides even inexperienced users through the leak detection process and assists in detecting all leaks: with the required number of test points and pre-programming of up to 10 test protocols.

New: A user friendly timer ensures compliance with minimum test times.

Maximum user comfort

The Ecotec 4000 makes complex leak testing as easy as possible for users.

With the improved Human Machine Interface (HMI) and optimized iGuide user guidance, the Ecotec 4000 helps to prevent user errors and provides users with the efficient and intuitive leak detection processes required for challenging testing situations, all without the need for extensive training.



Clearly structured display, effortless operation

The ergonomically shaped sniffer probe handle features an integrated, adjustable light source and side light guides, ensuring precise positioning of the sniffer tip—even in tight, dark, or hard-to-reach areas. Leak rates and any threshold exceedances are displayed directly on the probe, supported by both vibration and audio alarms for immediate, reliable feedback.

Comfortable operation

The 7-inch color touchscreen clearly displays multiple measurement values at once, while the enhanced HMI guides even inexperienced users through the menu with ease.

Optional: Connect an external display via HDMI for added visibility

Longer service life - greater energy efficiency

Robust components increase uptime while reducing operating costs.

New: Standby mode saves up to 40% energy.

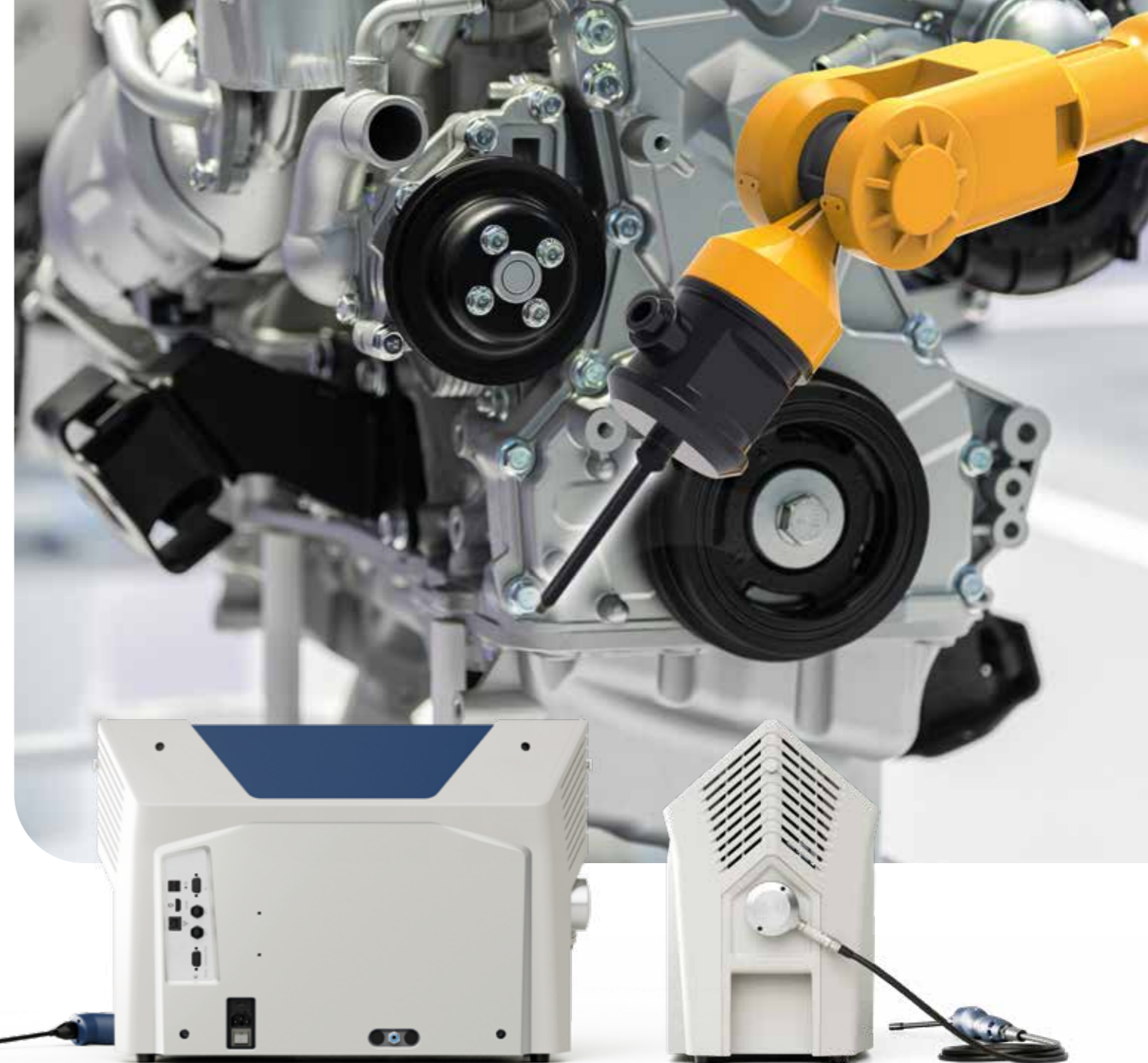
Innovative and patented INFICON solutions

INFICON offers a comprehensive range of sniffer tips and attachments designed for versatile, customer-specific applications—available in rigid or flexible versions and in multiple lengths.

The patented I-Tip SENS, equipped with brushes, and the I-Tip RUGGED, featuring durable rubber lips, reliably seal the measuring point for accurate detection. The I-Tip RUGGED and the SL4000 tip protection are particularly well-suited for demanding, harsh production environments.

A fine sniffer tip makes it easy to access tight or hard-to-reach areas, while additional surface and water-protection tips complete the portfolio.

(For more details, see the QR code on page 8.)



Maximum throughput

Robot-assisted sniffer leak detection - safe and reliable at even hard-to-reach measuring points.

- ✓ **Highest speed:** An optimized gas flow rate of 300 sccm enables faster scanning in dynamic, robot-guided processes and ensures reliable leak detection even in difficult-to-access areas, during precise static pin-pointing.
- ✓ **Comprehensive connectivity:** The Ecotec 4000 features all common communication interfaces—Ethernet, HDMI, and USB—along with support for the BM1000* and IO1000* modules. This allows seamless integration into existing networks and control systems.
- ✓ **Smart integration:** A laterally mounted, 180°-adaptable sniffer line connection simplifies installation and allows the Ecotec 4000 to be easily integrated into fully automated testing environments.

* BM1000: Field bus device interface; IO1000: analog and digital input/output interfaces and RS232 port between leak detector and external controller

ECOTEC 4000 MULTI-GAS LEAK DETECTOR

SPECIFICATIONS				
Smallest detectable leak rate	Mode R600a Helium	Precision 0.05 g/a (0.002 oz/yr) 1 x 10 ⁻⁶ mbar l/s	Optimum 0,2 g/a (0.007 oz/yr) 2 x 10 ⁻⁶ mbar l/s	High Speed 2.0 g/a (0.07 oz/yr) 2 x 10 ⁻⁵ mbar l/s
Measuring range	0.05–999.99 g/a (0.002–99.999 oz/yr)			
Sensor response time	0.1 s			
Sensor time incl. sniffer line	3 m: 0.3 s; 5 m: 0.6 s; 10 m: 1.4 s; 15 m: 2.6 s			
Maximum number of gases that can be detected in parallel	4			
Units of leak rates	g/a; oz/yr; mbar·l/s; Pa m ³ /s; ppm; atm cc/s; Torr·l/s, sft ³ /year			
Time until ready	< 2 min			
Dimensions (W x H x D)	615 x 420 x 270 mm (24.2 x 16.5 x 10.6")			
Weight	26.5 kg (58.4 lb.)			
Gas flow through the capillaries	130–170 sccm (Precision Mode); 280–350 sccm (Optimum Mode); 2200–3000 sccm (High Speed Mode)			
Permitted ambient temperature (during operation)	10–45°C (50–113°F)			

ORDER INFORMATION		
PRODUCT	CAT. NO.	
Ecotec 4000 multi-gas leak detector 100–240 V ±10 %, 50/60 Hz	530-201	
ACCESORIES		
EcoCheck 4000 calibration leak, R1234yf*	531-006	*optional, not included with Ecotec 4000 order
SL4000 BC, 3 m length**	526-001	**with Background Canceling feature
SL4000 BC, 5 m length**	526-002	**with Background Canceling feature
SL4000 BC, 10 m length**	526-003	**with Background Canceling feature
SL4000 BC, 15 m length**	526-004	**with Background Canceling feature
SL4000, 3 m length***	527-001	***without Background Canceling feature
SL4000, 5 m length***	527-002	***without Background Canceling feature
SL4000, 10 m length***	527-003	***without Background Canceling feature
SL4000, 15 m length***	527-004	***without Background Canceling feature
Robot SL4000, 3 m length***	527-005	***without Background Canceling feature
Robot SL4000, 5 m length***	527-006	***without Background Canceling feature
Robot SL4000, 10 m length***	527-007	***without Background Canceling feature
Robot SL4000, 15 m length***	527-008	***without Background Canceling feature
FT125, 125 mm, flexible	528-001	
FT390, 390 mm, flexible	528-003	
ST125, 125 mm, rigid	528-005	
ST390, 390 mm, rigid	528-007	
Holder for sniffer probe handle SL4000 / SL4000 BC	531-012	
CalMate 4000 calibrated leak adapter	520-300	
IO1000 module	560-310	
Data cable (IO1000 / BM1000) 5 m	560-335	
Data cable (IO1000 / BM1000) 10 m	560-340	



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Due to our continuing program of product improvements, specifications are subject to change without notice.
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