



REVOLUTIONARY SF₆ LEAK DETECTION

**Fast, Highly
Sensitive SF₆
Leak Detection**



Rapid detection of SF₆ leaks with non-radioactive source helping to reduce emissions and protect the environment.

Applications:

- SF₆ leak testing and measurement in high voltage switchgear (GIS)
- Breathing apparatus testing
- Medical device testing
- Leak integrity testing on medical, refrigeration and air conditioning equipment containing SF₆ and (H)CFCs.



Advanced Gas Sensing Technologies
www.ionscience.com

SF₆ GASCHECK P1 / SF₆ LEAKCHECK P1:p

SF₆ GasCheck P1

- Fast, accurate SF₆ leak detection

SF₆ GasCheck P1 is the original award-winning product primarily designed for in-house factory use for the location, leak testing and measurement of SF₆ in high voltage switchgear. With an easy-to-use touch screen display, navigation of the instrument's menu is simple. A choice of measurement units, ml/sec, gm/yr and ppm, not only gives the user flexibility, it also enables leaks to be quantified, which is vital when monitoring conformance to leak minimisation targets. Data can be stored and downloaded to a database or to a printer. The instrument allows for rapid detection of leaks, with both response and clear down in less than one second.

SF₆ LeakCheck P1:p

- Truly transportable SF₆ leak detection

SF₆ LeakCheck P1:p is similar to the SF₆ GasCheck P1, with a minimum detection level of 1×10^{-7} ml/sec. The instrument is housed within a hard-wearing robust Peli case for ease of transportation and use in the field.

Highsense Option

- Detecting even the smallest SF₆ leaks

The highsense option is now available with both the SF₆ GasCheck P1 and LeakCheck P1:p, extending both instruments' leak detection limits to 1×10^{-8} ml/sec.

SF₆ GasCheck P1 and LeakCheck P1:p are a revolution in SF₆ leak detection, ensuring incredibly fast searching at ultra sensitive levels. Even the smallest of leaks can be detected and located swiftly with a minimum detection level of 1×10^{-7} ml/sec or optional 1×10^{-8} ml/sec - equivalent to a grain of rice per year.

The use of our revolutionary Negative Ion Capture (NIC) technology as a non radioactive source has eliminated the problems of registration, storage and transportation associated with traditional radioactive ECD SF₆ detectors and has also removed the need for high purity pressurised argon, making SF₆ leak detection less of a regulatory burden.

SF₆ GasCheck P1 and LeakCheck P1:p are unique in that they are unaffected by large leaks of gas. Even after saturation or exposure to 100% SF₆, clear down remains rapid, eradicating frustrating hour-long delays between searches associated with other detectors.



- Non-radioactive source for ease of storage and transportation
- No consumables such as argon required, for reduced cost of ownership
- Highly sensitive for detecting leaks as small as 1×10^{-8} ml/sec*
- 1 second rise and clear down for rapid leak detection
- Unaffected by large leaks and 100% SF₆, for no frustrating delays between searches
- Choice of display units, ml/sec, gm/yr and ppm, for monitoring conformance to leak minimisation targets
- Touch screen for easy navigation of menus
- Lightweight, ergonomically designed handgun for ease of detection
- Data storage and printing for data analysis

*Highsense version

Rapid detection • Reduced emissions • Reduced cost



Easy-to-use touch screen display

SF₆ GasCheck P1 and LeakCheck P1:p both benefit from a unique touch screen display allowing quick and easy navigation through their menu structure. In measure mode the screen displays the leak rate in large numerical format. In search mode a bar graph represents the scale of the leak detected as a percentage of the set alarm.

There are a number of programmable features within the three-tiered menu structure which can be password protected to prevent unauthorised or unintended adjustments of parameters. Adjustable features include: setting the alarm levels, the screen appearance, switching handgun vibration on and off, gas selection (SF₆ or FM 200), selecting display units (ppm, gm/yr and ml/sec) and setting the volume.

Calibration of both instruments is simple. As standard, every instrument is supplied with a CalCheck self-calibration accessory. Step-by-step on-screen instructions are followed to take the user through the calibration process.



SF₆ and the Environment

SF₆ is a well-known greenhouse gas and, according to the U.S. EPA, its global warming potential is 23,900 times greater than that of CO₂, due in part to its atmospheric lifetime of 3,200 years. Due to its destructive potential, SF₆ gas was included in the Kyoto Protocol under which emission reduction targets apply. SF₆ is a man-made gas and is largely harmless to humans, which has enabled its use in many processes, from the filling of tennis balls to magnesium production. The single biggest use for the gas is as an insulator in high voltage switchgear for which there is currently no known substitute. It is in this application that the SF₆ GasCheck P1 and LeakCheck P1:p excel, due to their rapid response to tiny leaks and fast clear down even after saturation.

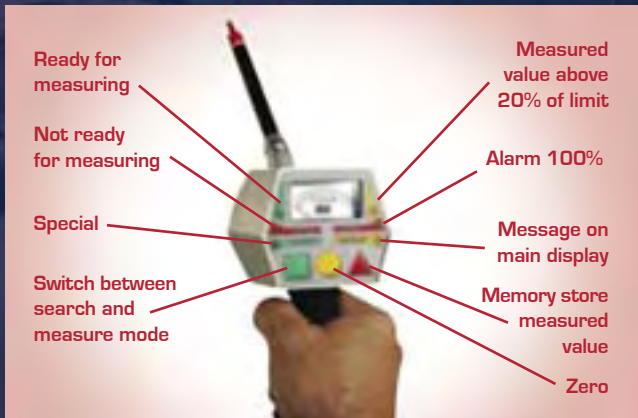
These instruments are helping industry to detect leaks quickly and hence reduce dangerous and costly SF₆ emissions into our atmosphere on a daily basis. In tracer gas applications, recent trends have been to move away from ozone-damaging SF₆ to more environmentally friendly gases such as FM200, another man-made gas with very similar properties to SF₆, and HCFs. Both the SF₆ GasCheck P1 and LeakCheck P1:p can be calibrated to a number of these gases and FM200 can be selected via the instrument's internal menu, allowing you to use the same instrument, whichever tracer gas you employ.



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Handgun Functions Explained

Both the SF₆ GasCheck P1 and LeakCheck P1 instruments are supplied as standard with a 5 m cable connecting the handgun to the main unit. This allows the user to search in difficult-to-reach areas quickly and easily. The main unit does not even need to be in sight of the handgun as the handgun contains all the control elements required for searching. An LED alarm will switch on whenever a measured value is over 20% of the limit value, and an audible alarm can also be set in the same way as a percentage to alert the user to a leak. For assurance the handgun can be set to vibrate when a leak is detected so the user can be in no doubt that a leak has been found.



Accessories

To complement the SF₆ GasCheck P1 and LeakCheck P1, a number of high quality accessories are available. Please see the table for more information.

Part No.	Accessories
A-23010	Printer with communication cables
23007	10 m extension hose fitted with male and female lemo connectors
23006	5 m extension hose fitted with male and female lemo connectors
23004	300 mm probe extender tip, with fine tube for finding leaks in awkward areas
A-21520	CalCheck with single point calibration filled with SF ₆ gas
5/BA-10	SF ₆ gas 0.1% Vol
5/BA-11	SF ₆ gas 1% Vol

TECHNICAL SPECIFICATION

MEASUREMENT PRINCIPLE

Negative Ion Capture (NIC): a non-radioactive, non-restricting carriage and no licensing required.

SENSITIVITY

Standard SF₆ GasCheck P1 and LeakCheck P1: 1×10^7 ml/sec, 1 ppm, 0.01 gm/yr SF₆
 Highsense option
 1×10^8 ml/sec, 0.1 ppm, 0.001 gm/yr SF₆

RESPONSE

T90 = < 1 second rise and clear down

OPERATION

Lead acid battery, internal and fully protected
 Recharge between 85-265 AC V, 50/60Hz

ALARM

Audio and visual with an optional handset alarm

MEASUREMENT UNITS

Measures in ml/sec, gm/yr and ppm
 Range: each unit 1:500
 Accuracy: $\pm 5\%$ of displayed leak rate or ± 2 digits
 Repeatability: ± 1 digit

CALIBRATION

Via CalCheck calibration accessory

DATA LOGGING

Over 500 data points with date and time stamp
 Download via RS232 to a PC

TEMPERATURE

Storage: -10 to 60 C (14 to 140 F)
 Operating: 0 to 50 C (32 to 122 F)

DIMENSIONS

SF₆ GasCheck P1
 Consol: 340 x 350 x 170 mm (13.4 x 13.8 x 6.7")
 Shipped: 810 x 430 x 450 mm (31.9 x 16.9 x 17.7")
 SF₆ LeakCheck P1:p
 Consol: 500 x 400 x 190 mm (19.7 x 15.7 x 7.5")
 Shipped: 520 x 430 x 210 mm (20.5 x 16.9 x 8.3")

WEIGHT

SF₆ GasCheck P1
 10.4 kg (22.9lb) Handgun 0.56 kg (1.2lb) Shipped 25 kg (55 lb)
 SF₆ LeakCheck P1:p
 Shipped 15 kg (33 lb)



ION SCIENCE is ISO9001:2000 certified (December 2003)

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