



# ION SCIENCE SF6 P1 XTL CIGRE 17



# A Quick Introduction



## Nick Loades

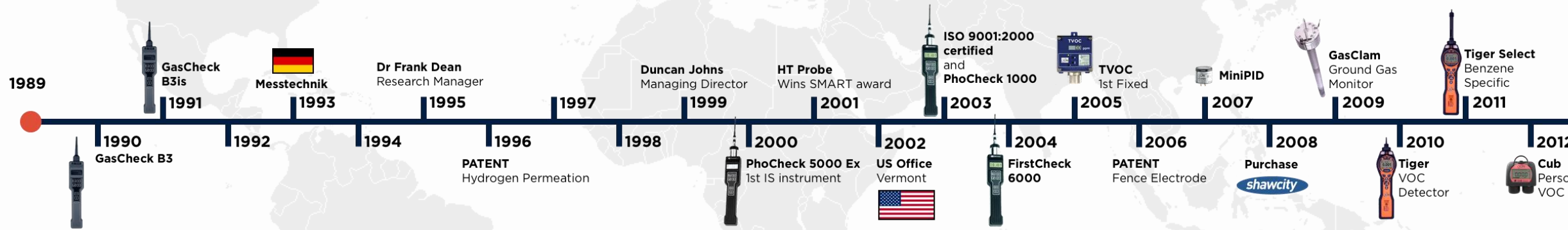
European Sales Manager at ION Science

Joined ION Science in June 2024.

Previous experience of working in Gas Sensing industries.

Covers all routes to market for ION Science Distributors within Europe.

# A brief history



## Core values



### VISION

To protect lives and preserve the environment.



### MISSION

To be the leader in gas sensing technology with relationships built on trust, pioneering products, responsiveness, and exceptional customer service.



### PROPOSITION

Pioneering Gas Sensing Technology.

# Overview

**35+**  
years

Founded in  
1989

**93+**  
Employees

UK office

**7**  
Offices



**100+** Worldwide  
Distributors

## In-house

Research facility



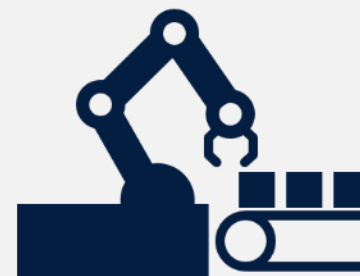
## In-house

Design & development



## In-house

Manufacturing



# Distributors & Partners



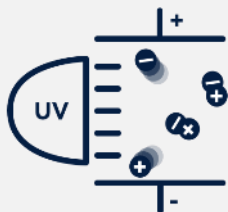


## Instruments for gas detection

ION Science manufactures a range of personal, portable, and fixed gas detectors using pioneering gas detection technologies.

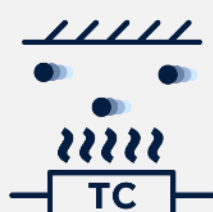
### Photoionisation

Detects VOC gases



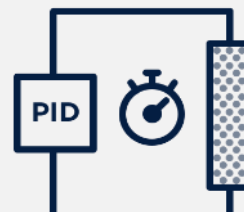
### Thermal conductivity

Gas leak detection



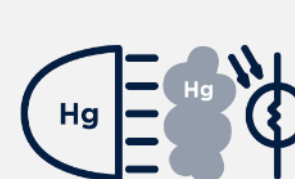
### Micro chromatography

Detects benzene



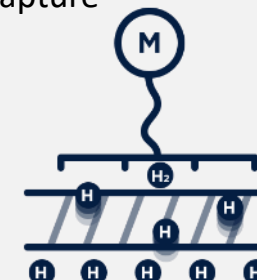
### Dual beam light absorption

Detects mercury vapour



### Hydrogen flux

Capture





# ION SCIENCE P1 XTL



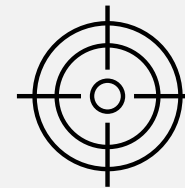
## Instrument Overview

SF6 is used in several industrial sectors for a range of applications increasing the need for accurate leak detection.

### Electrical Sector



### Tracer Applications



# Why?

## January 2026 = SF6 no longer being used in new Medium-Voltage Electrical Switch Gear

For more than five decades, high-voltage equipment relied on sulfur hexafluoride (SF6) gas with excellent properties for insulation and arc interruption, but with a very high global warming potential (GWP). To significantly reduce the carbon footprint of high-voltage equipment during its complete life cycle, users and manufacturers are implementing SF6 alternatives.



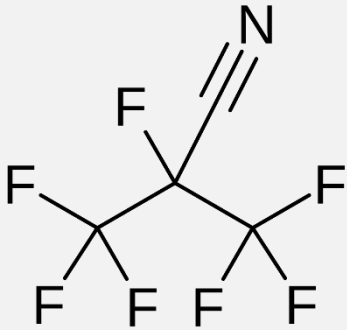
**HITACHI**

**SIEMENS**



# C4-FN Gas Introduction

## C4-FN



- C4-FN in its purest form is twice the dielectric of SF6
- C4-FN was designed to be used in GIS (Gas Insulated Switchgear)
- C4-FN is already widely used up to 420kV. This will continue to improve going forward



- C4-FN has been used in High Voltage applications since 2014
- C4-FN is already widely used up to 420kV
- C4-FN has a high boiling point so it is mixed with other gases when added to switchgear

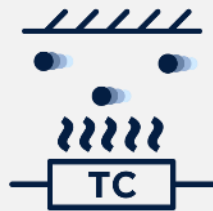




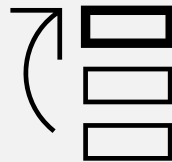
## Instruments For Leak Detection

ION Science offer three technologies for leak detection of SF6 Gas all with ranging features, functions and benefits.

**Thermal  
conductivity**



**High Voltage  
Ionisation**



**Negative Ion  
Capture**



# Product Overview



**SF6 LEAK MATE**



**PANTHER**



**SF6 P1 XTL**

**Leak Rate Sensitivity:**

1X10<sup>-6</sup>cc/sec

7X10<sup>-6</sup>cc/sec

1X10<sup>-8</sup>cc/sec

**Span Value Sensitivity:**

N/A

220PPM

0.1PPM, 1.0PPM

**Response Time:**

<2 Sec's

<2Sec's

<2Sec's

**Data Logging:**

NO

YES

YES

**C4-FN:**

NO

NO

YES

# SF6 P1 XTL



# P1 XTL Key Features

**Advanced Detection Technology - Utilises NIC technology to detect even the smallest gas leaks with high sensitivity.**  
**Dual Sensitivity Models:**

- **Standard:** 1.0E-7 cc/sec, 1 ppm, 0.01 g/a
- **HighSense:** 1.0E-8 cc/sec, 0.1 ppm, 0.001 g/a
- **Rapid Response Time** - Achieves T90 and T10 response times of approximately 0.5 seconds.
- **No Warm-Up Required** - Operates immediately upon activation without the need for warm-up or stabilization time.
- **User-Friendly Interface** - Features a 2.8-inch touch display on the handheld unit for easy operation.
- **Multiple Alarm Options** - Offers selectable handgun vibration, audio signals, and LED projection for leak detection alerts.
- **Self-Diagnostic Capabilities** - Monitors sample flow, sensor condition, battery status, and hardware faults to ensure reliable operation.
- **Portable Design** - Comes with a rugged protector case for easy transportation and includes a docking station for inductive charging
- **Wide Operating Temperature Range** - Suitable for use in temperatures ranging from 0°C to 50°C during operation, and -10°C to 60°C for storage



# GIS Competitor Analysis

## SF6 P1 XTL COMPETITOR COMPARISON



	<b>ION Science SF6 P1 XTL</b>	<b>DILO SF6 LeakSpy</b>	<b>DILO Multi-Analyzer SF6</b>
<b>Detection Principle</b>	Negative Ion Capture	Non-Dispersive Infrared Sensor	Electronic dew point measurement (capacitive)
<b>SF6 Sensitivity</b>	1.0E-8 cc/s - 0,1 ppm - 0,001 g/a	3 g/y	Unknown
<b>Response time (T90)</b>	< 0.5 sec	< 1 sec	≤ 7 variable calculated by system
<b>Response time (T10)</b>	< 0.5 sec	Unknown	Unknown
<b>Alarm</b>	Handset vibration, LED projection	Graphic Display, audible signal	Unknown
<b>Audio</b>	Frequency/repeat rate coupled to leak rate condition signals	Signal	Unknown
<b>Display/Interface</b>	2.8" touch display on handset	Graphic display	USB/LAN/WiFi
<b>Self Diagnostics</b>	Sample flow, sensor condition, battery condition, hardware fault	Unknown	Unknown
<b>Battery</b>	Handset: Li-ion, inductive charge at docking station. 12 months	Unknown	Unknown
<b>Operating Temperature</b>	0°C to 50°C	0°C to 50°C	-10°C to 50°C
<b>Warranty</b>		Unknown	Unknown



# Feedback from Sales & Demonstration in EU



# Customer & Prospect Examples

## FFE

- Had been using a product that was going to be obsolete within 2024 and had to look at 2 issues
  - **The impact of SF6 being removed from market**

The Sudden change in the gas used was not such a big issue but that coupled with a unit that could no longer be serviced or repaired meant that FFE only had a finite amount of time to fix 2 issues.

- **A new unit that would be suitable for SF6 and future gas (C4-FN)**

The timing of the equipment breaking 6 months from a change in industry was also a large concern for the team at FFE. They wanted to try and address both issues with the introduction of a new unit.



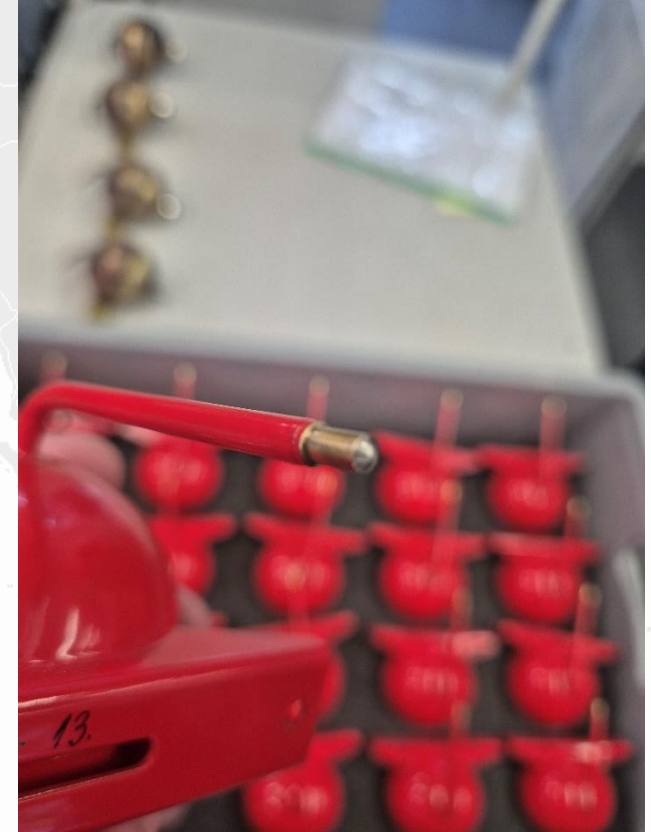
## Live Demo



### FFE – Airbus Contract

FFE had been using a competitor product that had become obsolete and faced the possibility of changing the SF6 to an alternative.

FFE chose the P1 XTL based on ease of use, speed of detection and no warmup time. Additionally, they loved the charge dock, wireless gun and future versatility with the option of C4-FN as an alternative gas.



# Customer & Prospect Examples

## HOPS

- HOPS use a competitor equipment from Germany and found the sniffer to be inefficient in detecting smaller leaks.

- **The impact of SF6 being removed from market**

The landscape for Switchgear is changing and the big electricity houses are looking for a sustainable alternative to SF6.

- **Leak rates are reported annually and vetted independently**

The HOPS team wanted to make sure their processes were to code and were increasingly worried about the ability of some the equipment they currently use to perform safety tasks across 15 sites in Croatia.



## Live Demo

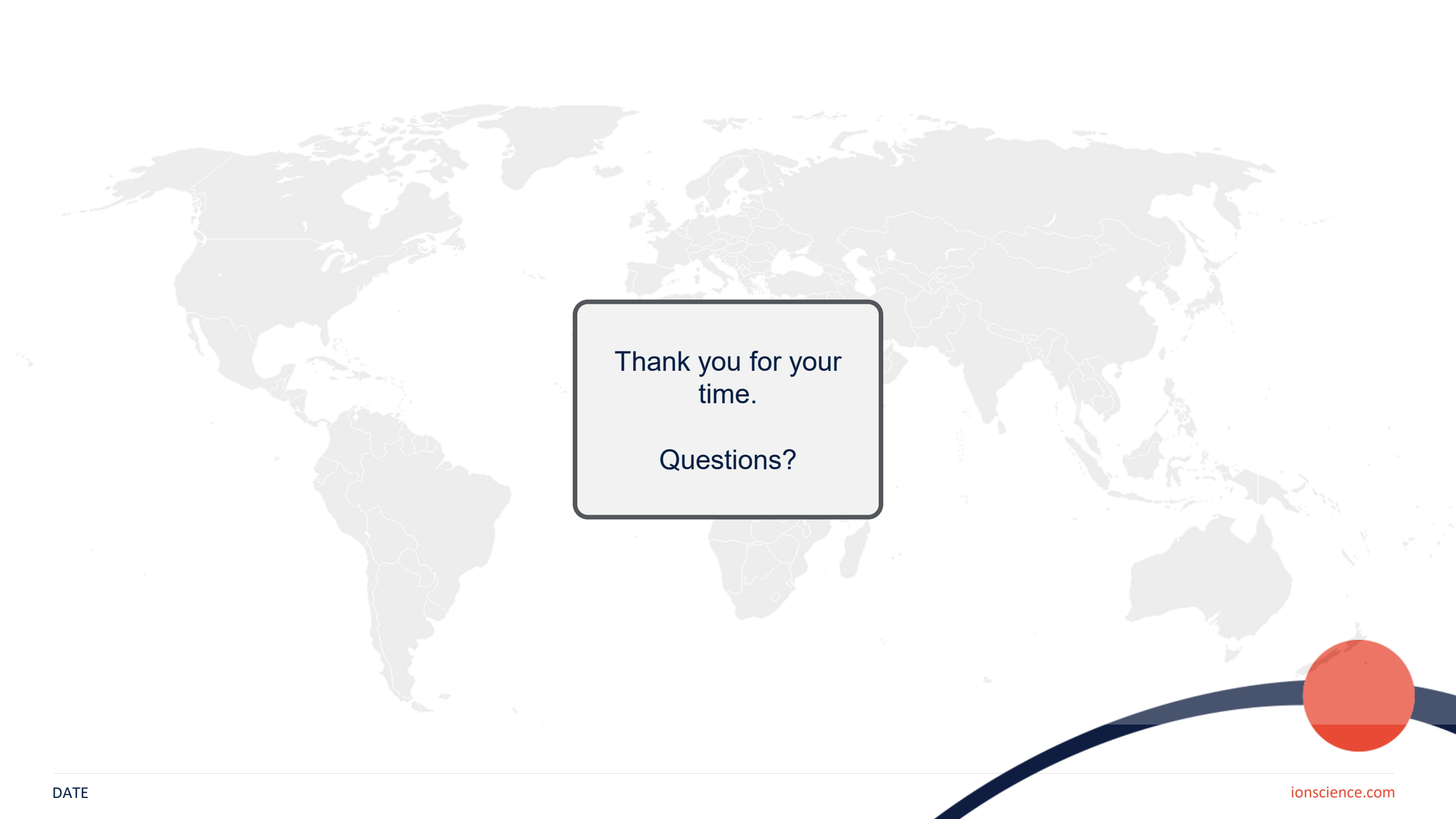


### HOPS, Croatia – Electricity Supplier

They had lots of trouble with a leading SF6 unit which couldn't pinpoint the leak at this Switchgear station outside Zagreb.

The P1 XTL managed to locate the leak with accuracy in under 90 seconds and deliver a leak rate which was also something the unit they had was unable to do.





Thank you for your  
time.

Questions?