



**blacklinesafety**



---

# **CONNECTED GAS DETECTION: TECHNOLOGY FOR THE HYDROGEN ECONOMY**

---

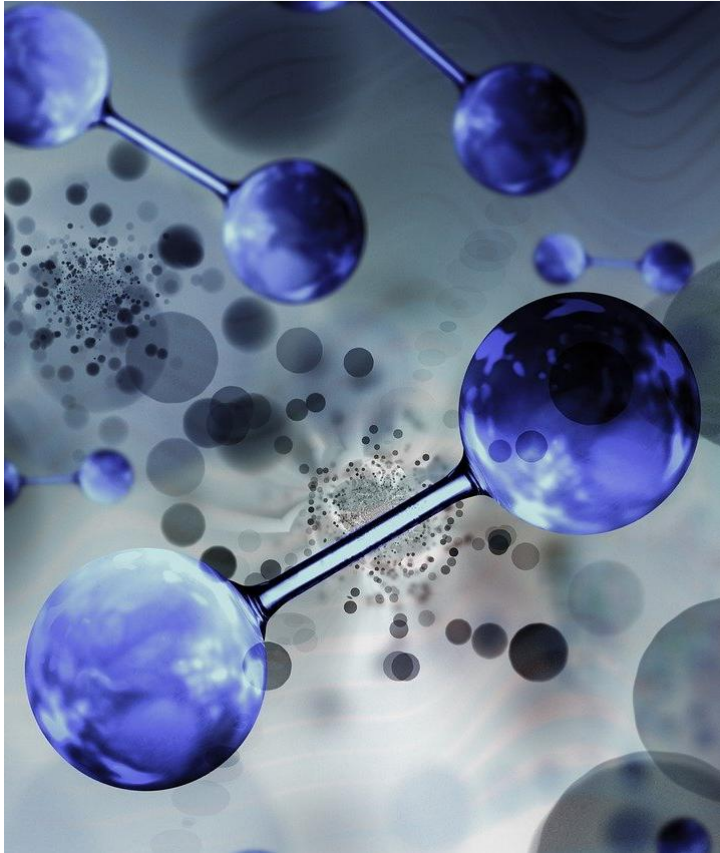
MICHELLE SMITH – BLACKLINE SAFETY

# INTRODUCTION



**Michelle Smith**  
*Regional Sales Manager at Blackline  
Safety*

# HYDROGEN PROPERTIES



- Colourless, odourless, tasteless
- Lightest and most abundant of all elements
- Extremely flammable
- Hydrogen in air is flammable at concentrations between 4% and 75% by volume (for comparison, methane is flammable in air only in a proportion between 4.4% and 17% by volume)
- Hydrogen gas consists of H<sub>2</sub> molecules: each molecule is made up of two hydrogen atoms bound together
- Due to its small molecule size, Hydrogen is prone to leaking out of containment.

# HYDROGEN RISKS

- At each stage of its journey from production to use, the nature of hydrogen as a flammable gas which is hard to contain means it poses significant risk
- Many industries that use gas detection are already protecting workers against gases produced as part of their operations
- As energy providers in particular move towards the production of cleaner fuels, they will need to broaden the spectrum of the gases they detect to include Hydrogen among others.





blacklinesafety

WHERE  
BLACKLINE  
CAN HELP



# blacklinesafety

+



- Provides wearable safety technology, personal and area monitoring, cloud-connected software and data analytics
- Founded in 2004
- Headquarters based in Calgary, Canada with offices located in Texas; UK, France; and the UAE
- 500+ employees globally

- Provides semiconductor-based gas sensing solutions, with advanced multi-gas sensing products,
- Founded in 2004
- Over half a million MPS sensors deployed
- Headquarters based in Reno, NV

# POWER OF CONNECTED SAFETY

## Blackline Platform Saves Lives

Blackline Safety provides industry-leading technology for lone worker protection, gas and radiation detection, to make sure everyone gets home safe.



- Real-Time Visibility
- Reliable Connectivity
- Advanced Sensor Portfolio for Gas and Gamma Detection
- Layers of Communication
- Robust Reporting and Analytics
- Streamline and Scale with Ease



165,000+  
Workers Protected

75+  
Countries

2,250+  
Leading Brands

250 + Billion  
Data Points

8 + Million  
Emergency Alerts

60,000+  
Monitored Devices



# VALUE & ROI OF CONNECTED WORKER INITIATIVES

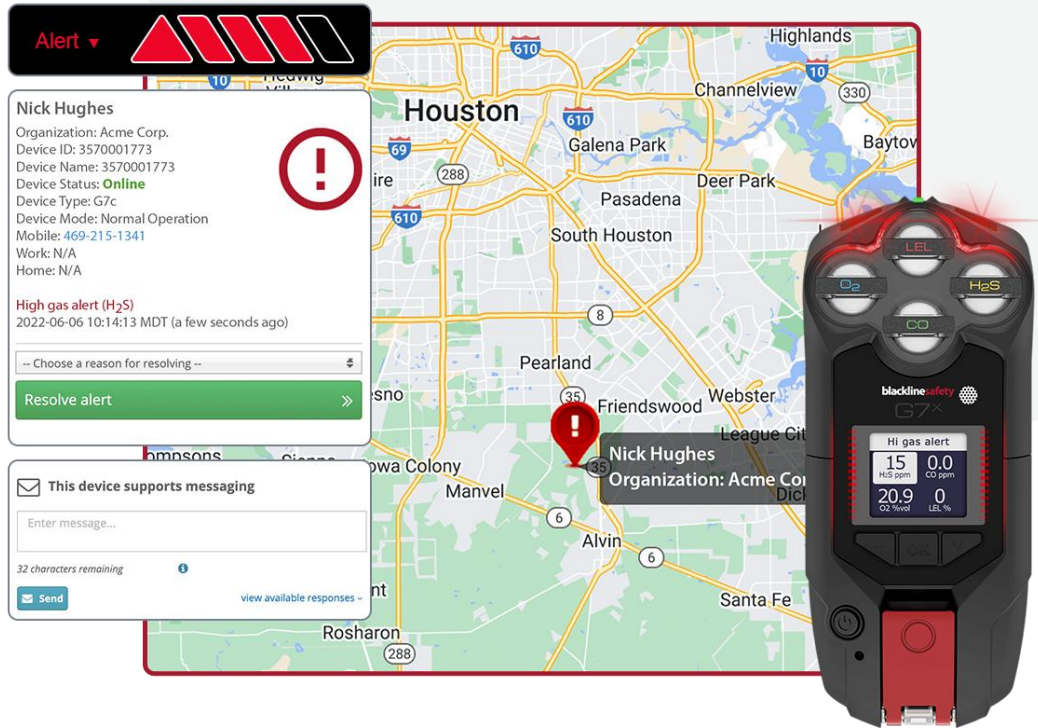
- Improve Safety Culture
- Reduce Worker Risk and Exposure
- Increase Safety Compliance
- Insights To Increase Productivity And Uptime
- Operational Efficiency
- Continuous Improvement



**CONNECTED WORKERS REDUCE OPERATIONAL SPEND BY 8.5%  
AND WEARABLES INCREASE PRODUCTIVITY BY 8%**



# DEDICATED DEVICE CAPABILITIES



- Automatic
  - Fall detection
  - No-motion (man-down) detection
  - Employee check-in
- Manual
  - SOS latch
- Cellular connectivity
- Two-way messaging with the monitoring team
- Gas detection (intrinsically safe) including Hydrogen
- Push-to-talk
- Location technology
- Remote configuration management
- Speaks 9 languages

# EXO 8: ADVANCING AREA MONITORING

NEW



The world's **only** direct-to-cloud portable area monitor detecting up to 8 gases and gamma radiation, offering robust hazard protection and early warning.

Drop-and-go deployment

Real-time data streaming to the cloud

Up to 100+ days of battery life

Robust reporting and analytics

Built to perform in extreme conditions

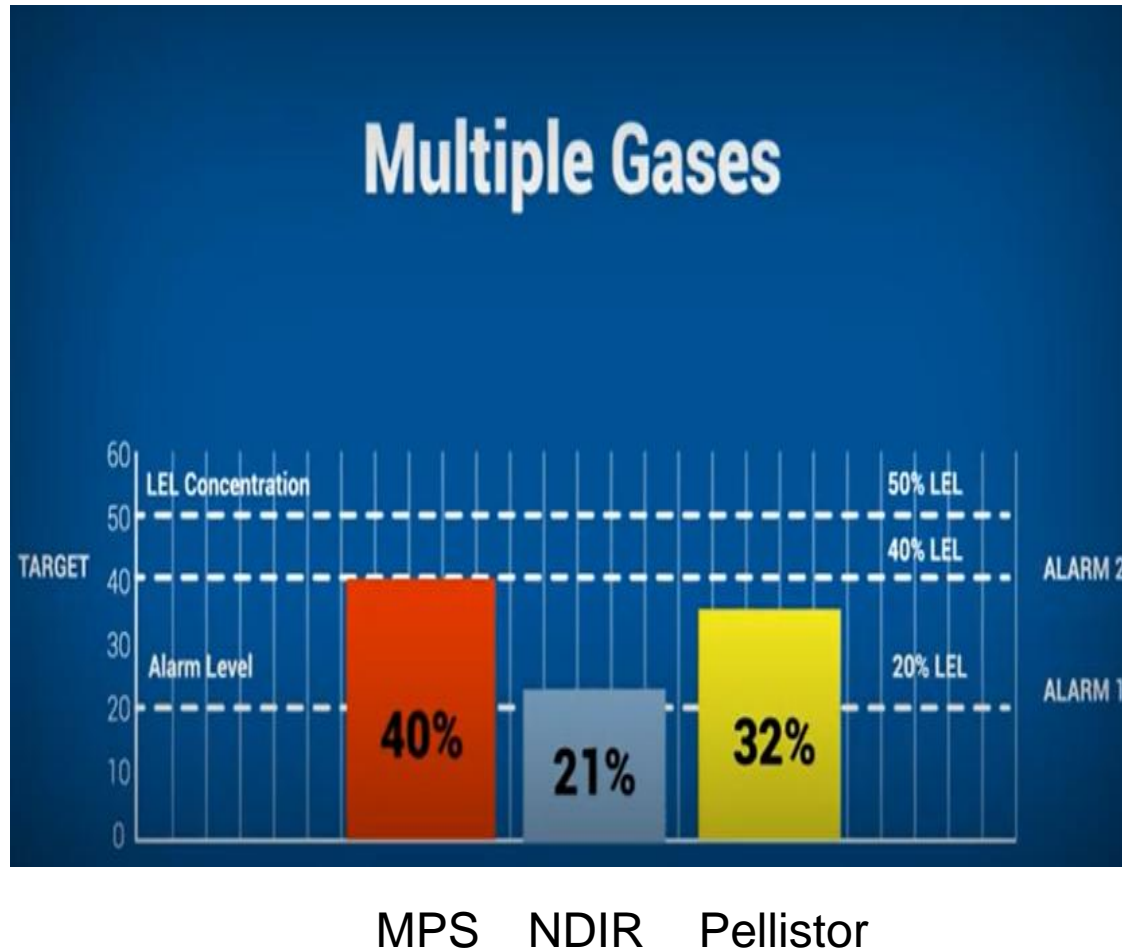
24/7 live monitoring

# MPS TECHNOLOGY BENEFITS IN RELATION TO HYDROGEN

- All gas sensors have different characteristics and the MPS™ technology has the following benefits in relation to Hydrogen applications:
  - Firstly, the MPS™ is highly accurate when measuring Hydrogen and blended combustibles when Hydrogen is present
  - The MPS™ cannot be poisoned and will not saturate
  - Although it is best practice to expose your sensors to gas on a periodic basis, NevadaNano has 7+ years of data showing no drift or deterioration, so calibration is not needed in the field
- **All these statements can be backed up with data or YouTube videos.**



# GAS TESTING WHEN CALIBRATED TO METHANE



- These are independent testing of the MPS v traditional sensor
- All sensors have been calibrated to 50% LEL of Methane
- This shows
  - 20% Hydrogen, 10% Butane and 10% Methane
  - MPS reads accurately
  - NDIR under reads and doesn't see the Hydrogen
  - Pellistor under reads
- Outcome
  - Both the NDIR and Pellistor will actually miss the high alarm in this scenario

<https://www.youtube.com/watch?v=onE3xRaXzFM>

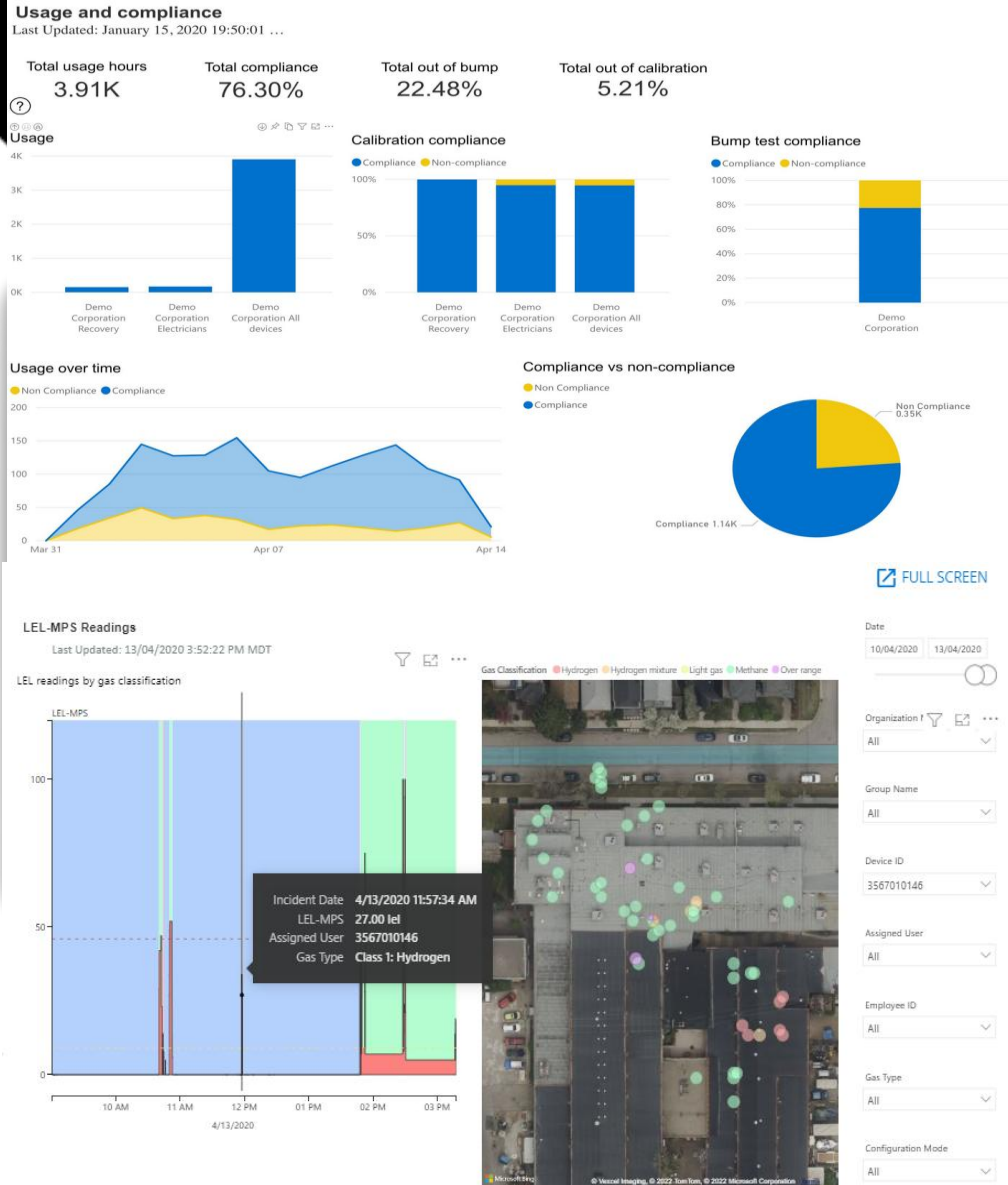


**blacklinesafety**

# **ANALYSING RISK – BLACKLINE ANALYTICS & REPORTING**



# FULLY AUTOMATED REPORTING



Every G7 device streams data direct-to-cloud

Automated, interactive reporting enables you to:

- Make data-driven decisions
- Run a world-class gas detection programme with less effort
- Increase team efficiency and focus on important work
- Adapt to evolving risks
- Map the location of gas exposures
- See the duration of each exposure



**Q & A**





**blacklinesafety** |

---

**THANK YOU**

• For more information visit:

**[www.blacklinesafety.com](http://www.blacklinesafety.com) or contact  
[eusales@blacklinesafety.com](mailto:eusales@blacklinesafety.com)**

---