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certified WBENC WOMEN'S BUSINESS ENTERPRISE

Update on the Latest Natural Gas Leak Detection Technology

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Heath®
Your Safety Our Commitment

About Heath

Key Facts

- **Founded in 1933**
- **3rd Generation family owned**
- **Certified women's business enterprise**
  - By Women's Business Enterprise Council

Solutions

- **Technology**
  - Advanced Mobile (AMLD)
  - Portable and handheld
- **Services**
  - Leak Survey
  - Locating
  - Meter reading
  - Damage Prevention

Footprint

- **Technology**
  - Rich history of product sales throughout all 50 USA states, Canada and International
- **Services**
  - >2000 employees conducting survey operations across USA

Affiliations

American Gas Association

Canadian Gas Association

International Gas Union

Industry Leak Detection Technology and Field Services

Products

- Advanced Mobile Leak Detection
- Portable Leak Investigation
- Emissions Quantification
- Personal Safety Products
- Instrumentation Calibration, Repair and Rental

Field Services

- Leak Survey
- Gas Meter
- Training

Companies Heath Works With

Companies Heath Works With

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Your Safety Our Commitment

Discover E2E

The complete solution for efficiency, safety and compliance in leak survey operations

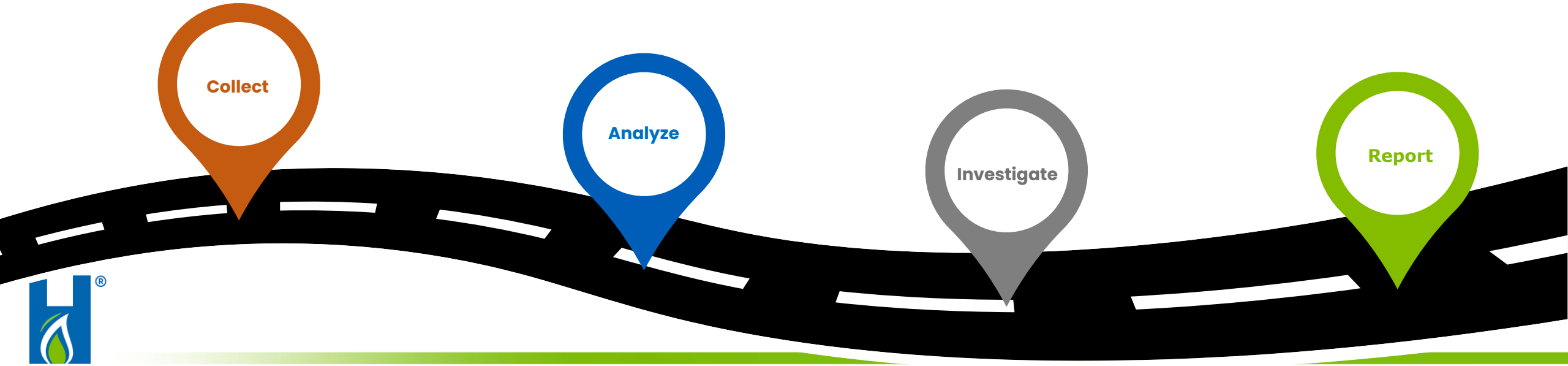
Overview

Discover E2E

Heath's Discover E2E (End-to-End) solution integrates industry-leading technology with comprehensive services to streamline the entire leak survey workflow.

Backed by 92 years of industry expertise, Heath provides an innovative, future-ready solution designed to meet today's regulatory demands and adapt to evolving standards.

This proven and efficient approach delivers a transparent, auditable dataset, offering complete visibility into your advanced leak detection program.



Advanced Mobile Leak Detection

Discover – Key Components

- **Detection Unit**
  - Comprising of optical engine and laser target for methane and ethane discrimination (configurable methane to ethane ratio for post-processing)
- **GPS**
  - Supporting vehicle navigation and indication location recording
- **Anemometer**
  - Measuring wind speed and direction during AMLD survey
- **In-vehicle computer**
  - Running Heath proprietary leak survey software

Leak Investigation Technologies

Discover E2E

RMLD-CS

Infrared optical gas detection system*, **same TDLAS technology as Discover AMLD**

- Intrinsically safe (IS) with rating of Class I, Division II for indoor and outdoor operation
- Detection up to 30m away (100ft).
- Operates under a variety of environmental conditions

DP-IR+

Infrared optical gas detection system*

- High-sensitivity for detecting methane.
- Operates under a variety of environmental condition
- Built-in self-test and zero functionality

*Single digit parts per million (ppm)

Leak Investigation Technologies

HYBRID CGI

The Next Generation of Leak Survey Instrumentation

- Industry first self calibration inside the unit
  - No need for external gases or calibration stations
- Multi-gas detection
  - CH_4, NMHC, CO, CO_2 and O_2
- Biogas discrimination
- Applications
  - Pipeline construction
  - Bar Holing
  - Pinpointing

*Indeterminates, once localized we are testing it for ethane

The E2E Solution

Discover E2E

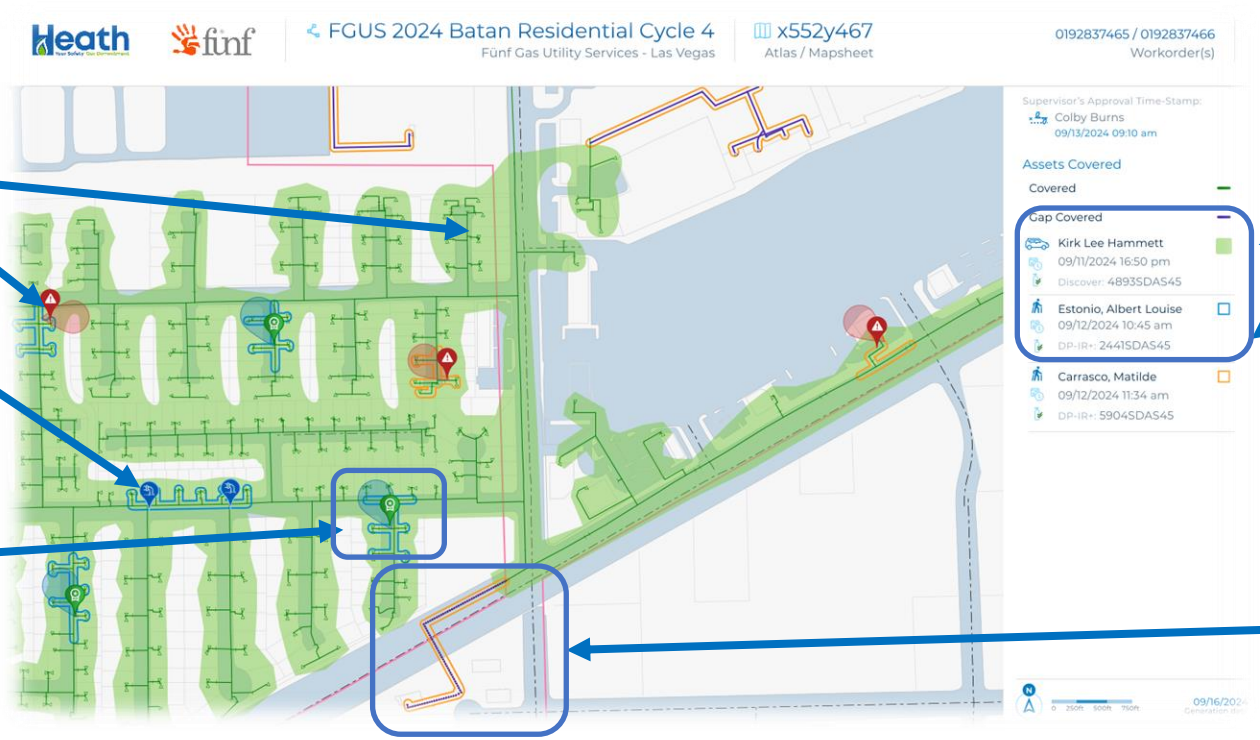
Full leak survey visibility with advanced technology and field services

Collect with Discover AMLD

- Initial Asset Coverage
- Real-Time Indications
- Coverage Reporting
- Biogas Discrimination

Indication Investigation

- Utilizing award-winning RMLD, DP-IR+ technologies
- Mobile App
- Data Upload to Cloud
- Heath's OQ trained personnel
- 6-point investigation



Reporting

- Compliance Map
- Dashboarding
- Calibration Records
- Personnel Assignment
- Integrated Data Capture of Discover and Mobile

Gap Coverage

- 85% AMLD, 15% walking
- Utilizing walking field personnel for asset coverage gaps
- Uses Heath's RMLD, DP-IR+

Result = Complete Coverage Map

The E2E Solution

Discover E2E

Web-Based Portal for Survey Operations Management

Survey Management

- Mains and Services survey overview
- Mobile vs walked
- CGI count
- Productivity analysis

Survey Metrics

- Ability to filter by date and time
- Leaks Found by Grade
- Underground leaks by grade
- Customizable views

Our Approach

Discover E2E

Enhancing Efficiency, Prioritizing Safety in Compliance Leak Survey—Backed by 92 Years of Proven Expertise

Improving Asset Coverage

Better data insights and leak analytics

By using AMLD configured to appropriate runs and passes and tailored SCF levels

Discover AMLD covers 20+ mpd

Prioritizing Safety

A reduced walking leak survey footprint will lead to a reduction in slips, trips and falls

Improved accuracy for leak indications

Discover AMLD sensitivity in PPB

Enhancing Efficiency

Reduced customer service inquiries by removing a technician and not having them on property

By creating more uniformity, reducing human errors in walking leak survey.

Less footprint not walking all assets unnecessarily

Our Process

Discover E2E

03. Drive

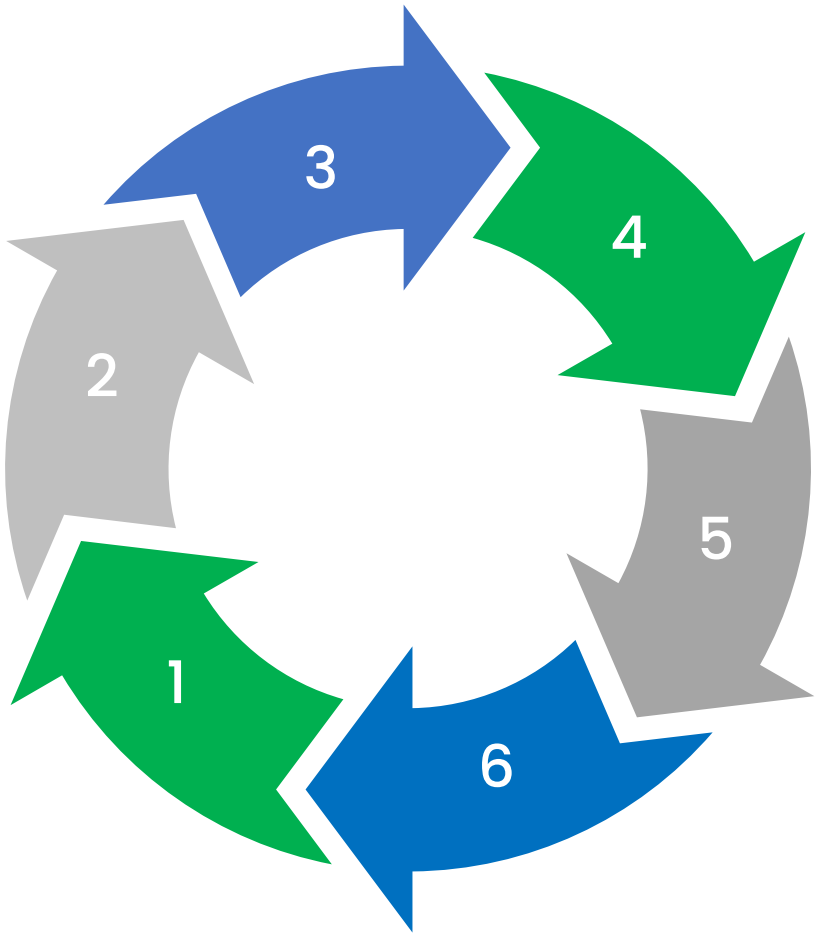
AMLD Vehicle performs survey tailored to customer requirements. e.g. number of runs and number of passes.

02. Startup and Calibration

AMLD driver mounts, aligns and calibrates Discover AMLD.
(Average time for calibration 5 mins)

01. Survey Assignment

Discover AMLD driver is assigned survey grid.



04. Indication & Gap Assignment

Discover AMLD indications are assigned in real-time or post processed to Leak Investigation Specialist.

05. Leak Survey Investigation

Thorough investigation is performed from Discover indication search cone. Heath leak survey equipment is used to conduct investigation and grade leak.

06. Reporting

Discover Leak Analytics Report is generated with summary, parameters used , covered mileage, survey route indications.

Unlocking Greater Efficiency Across the Field Services Workflow

Discover E2E

Additional Services

- Atmospheric corrosion and remediation
- Above ground leak repair
- Pinpointing

HYBRID™

A new standard in portable leak detection

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Confidential, do not distribute

Introducing the HYBRID Product Line

Product portfolio of multi-gas detection & measurements instruments with industry-first calibration functionality

HYBRID SERVICE

HYBRID Service
For leak and odor investigation
Gases: CH_4, NMHC, CO, O_2 and CO_2

HYBRID CGI

HYBRID CGI
Leak and Odor Investigation, pipeline construction, pinpointing & barholing
Gases: CH_4, NMHC, CO, CO_2 and O_2

Where HYBRID™ Works: Core Applications and Use Scenarios

Innovative technology designed for leak detection and investigation across the complete natural gas infrastructure. Built to integrate with our Heath Discover E2E solution.

	HYBRID Service	HYBRID CGI
Applications	Leak Investigation Odor Investigation	Leak and Odor Investigation, Construction, Pinpointing, Bar Holing
Industries	Utilities, First Responders, Local Gas Distribution Companies, Gas storage facilities, Confined Space Monitoring	Utilities, Construction companies, Local gas distribution companies, Industrial gas distributions, Gas storage facilities, Landfill monitoring

The Next Generation in Multi-Gas Detection

HYBRID™

Benefits

- **Industry-First Built-In Calibration**
  - Internal daily calibration—no external gases or calibration stations required
  - Ensures compliance with zero downtime
- **Advanced Gas Detection Performance**
  - High sensitivity with fast response times for critical leak survey and investigations
  - Multi-gas detection with native discrimination between pipeline gas and other methane sources (biogas, sewer, etc.)
- **Remote Updates & Configuration**
  - Over-the-air (OTA) firmware updates keep devices current
  - Instantly push alarm configurations and retrieve calibration records without field downtime

Providing an Array of User-Centric Features

HYBRID™

Key Features

Design & Usability

- **Robust and Ergonomic Designs**
- **High-Visibility Display**
  Readable in direct sunlight and low-light conditions
- **Rechargeable via USB-C**
  Convenient charging—no proprietary cables

Data & Connectivity

- **Automatic Data Sync**
  Seamlessly uploads to Web Portal via Mobile App
- **Consistent, User-Friendly Interface**
  Minimizes training time across all devices

Modular & Future-Ready

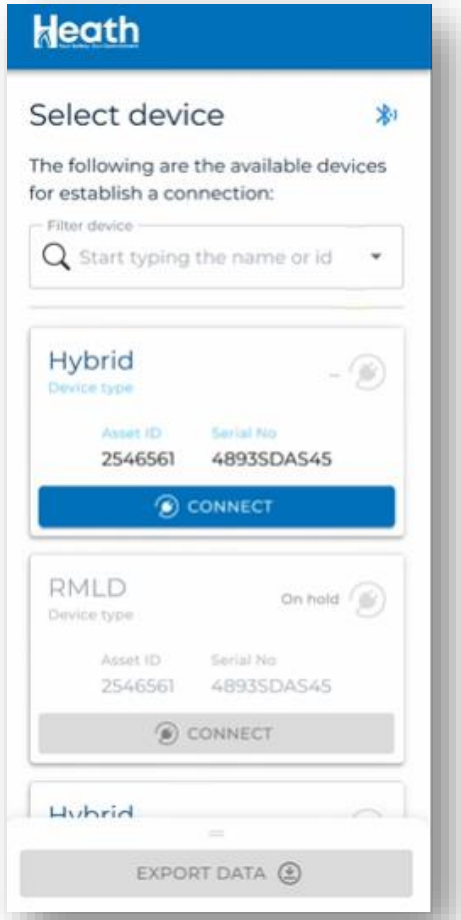
- **Detachable Head Module**
  Easy maintenance and quick swap capability

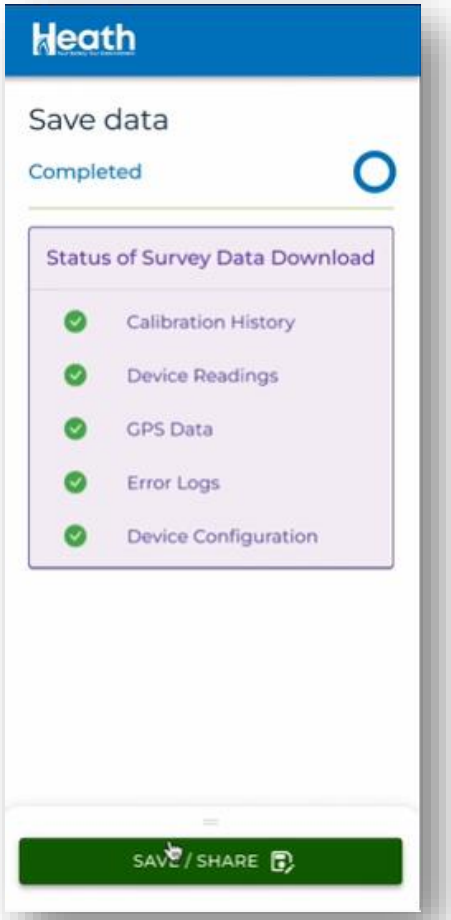
Data Logging Capabilities – Heath Mobile App

HYBRID™

Available for Android and iOS Devices

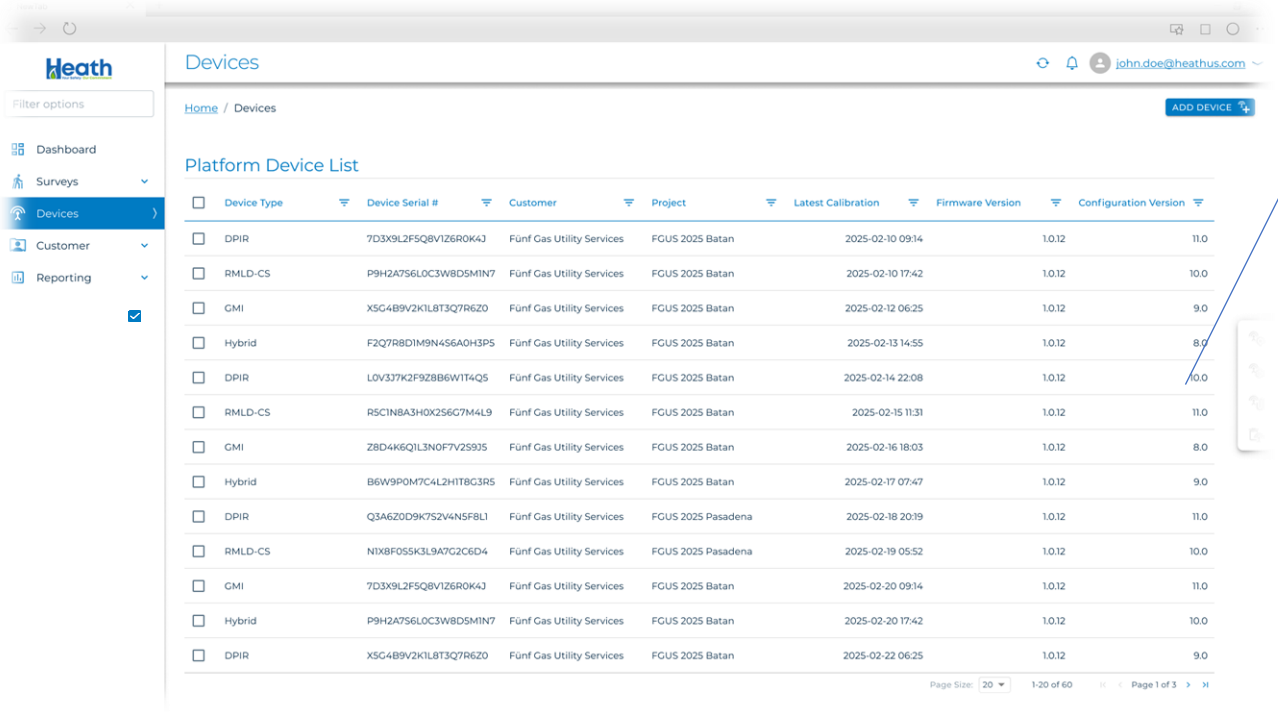
- **Calibration History Access**
  View daily calibration logs directly from your device
- **Live & Logged Device Readings**
  Monitor and review device gas readings data in real-time
- **Integrated GPS Data**
  Track survey routes and location-specific readings
- **Error Log Review**
  Quickly identify and troubleshoot issues in the field
- **Remote Device Configuration**
  Over the Air device alarm configuration
- **Data Download Capability**
  Easily retrieve records for reporting and compliance
- **Automatic Firmware Updates**
  Ensure devices stay up to date—no manual intervention



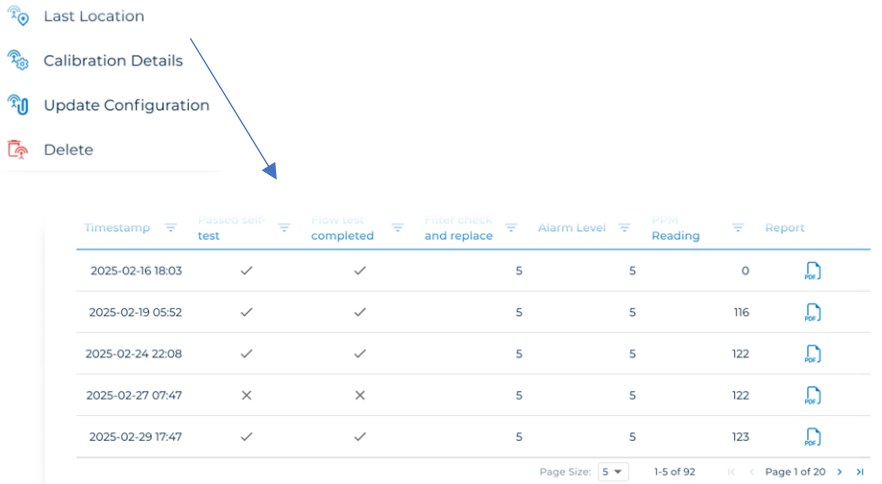


Calibration Record History – Heath Web Portal

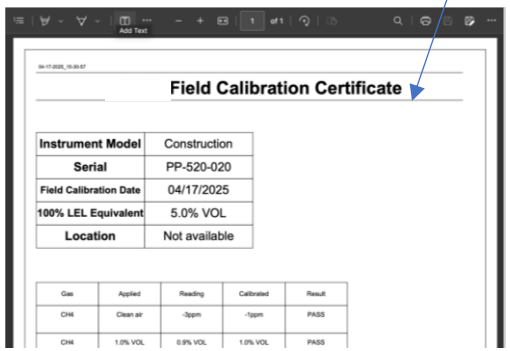
Device Calibration Records. Anytime. Anywhere.



Heath Web Portal – Device List



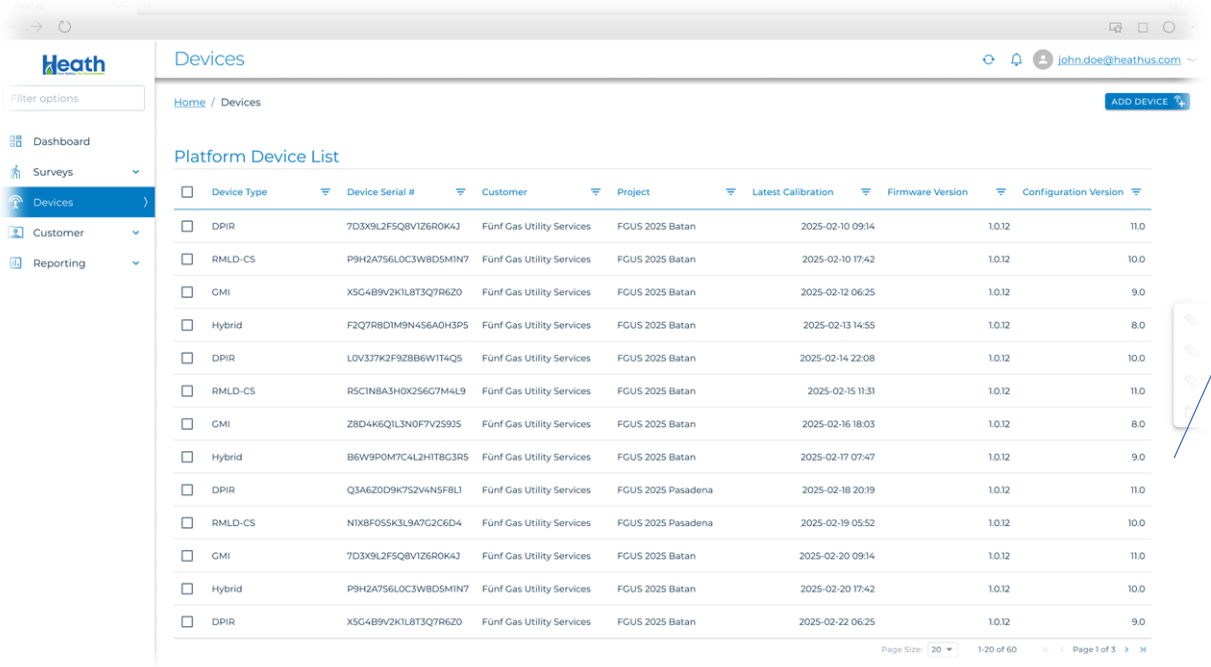
Device Calibration History



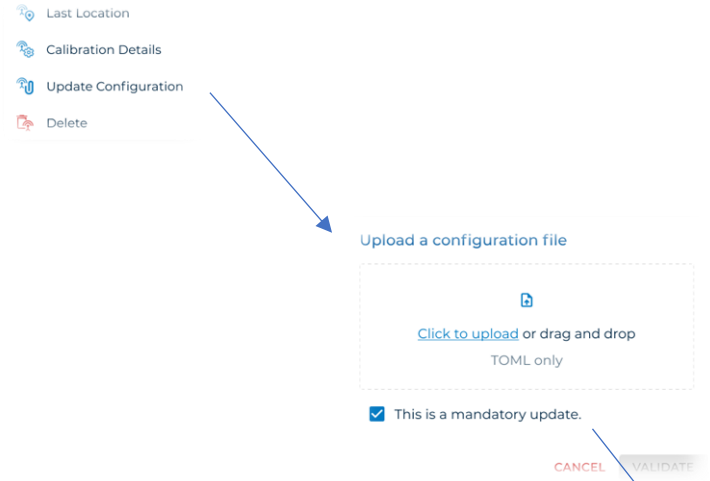
Electronic Device Calibration Certificate

Over -The -Air Updates – Device Configuration

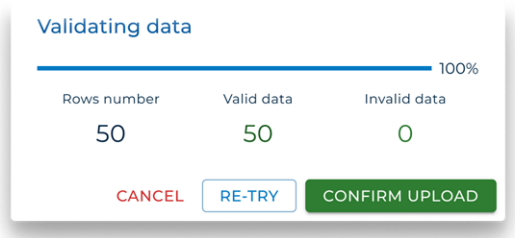
Effortless Configuration Updates and Validation —No Field Visits Required



Heath Web Portal – Device List



Upload of new device alarm settings



Upload to all selected devices

Specifications

HYBRID™

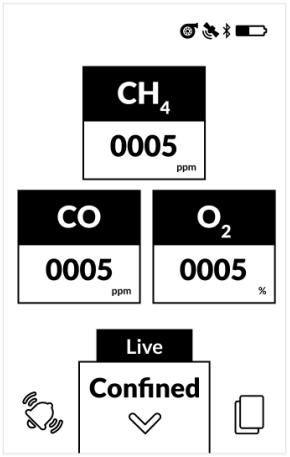
***Subject to change

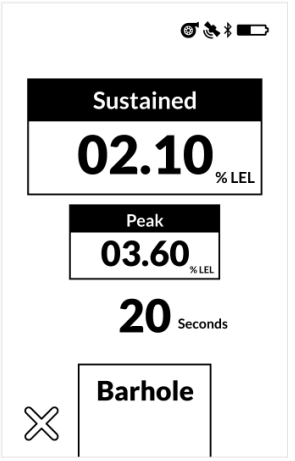
Specification	Service	CGI
Gases detected	Methane (5ppm – 100%) CO (5ppm – 500ppm) CO_2 (0.2% – 30%) O_2 (0.1% - 25%)	Methane (5ppm – 100%) CO (5ppm – 500ppm) O_2 (0.1% - 25%) CO_2 (0.2% – 30%)
Pipeline gas discrimination	Yes (at 1% natural gas mix)	Yes (at 1% natural gas mix)
Response time	~ 2s	~ 2s
Self-calibration	Yes (methane, CO, CO_2)	Yes (methane, CO, CO_2, O_2)
Weight	~3 lb	~3.7 lb
Start-up time	< 4 min	< 4 min
Battery life	2 hours typical use case USB-C rechargeable (extended battery will provide additional runtime)	4 hours operational x 2 batteries USB-C rechargeable
Connectivity	Wireless Connectivity , USB, removeable SD card, OTA firmware update	Wireless Connectivity, USB, removeable SD card, OTA firmware update
GPS	Precision Dual frequency GNSS	Precision Dual frequency GNSS
Hazard/Explosive Atmosphere Cert.	Intrinsically Safe, Class 1 Zone 1	Intrinsically Safe, Class 1 Zone 1

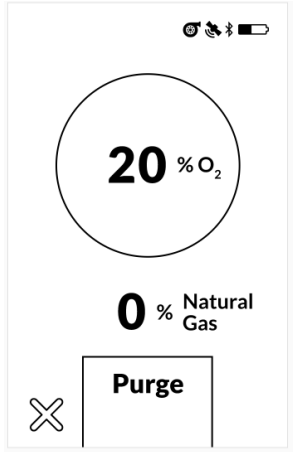
HYBRID User Interface

Enhanced Usability with a Modern, Intuitive Interface

- **Clean, Modern Design**
  Streamlined for ease of use in any environment
- **Touchscreen or Button Control**
  Flexible operation to suit user preference and conditions
- **High-Visibility Display**
  Clear readability even in direct sunlight and outdoor settings
- **Fast Learning Curve**
  Consistent interface across Service and CGI instruments minimizes training time







Safety & Compliance Standards

Engineered for Safety. Certified for Compliance

Intrinsically Safe Class I, Zone 1
Meets North American standards for equipment used in hazardous
DOT UN38.3 / IEC 62281
Certified safe for transportation of lithium batteries by air, land, and sea gas zones.
FCC Compliance — 47 CFR Part 15
Confirms the device's radio frequency emissions comply with U.S. Federal Communications Commission rules.
IEC 62133
International standard ensuring the safety of rechargeable batteries used in portable devices.

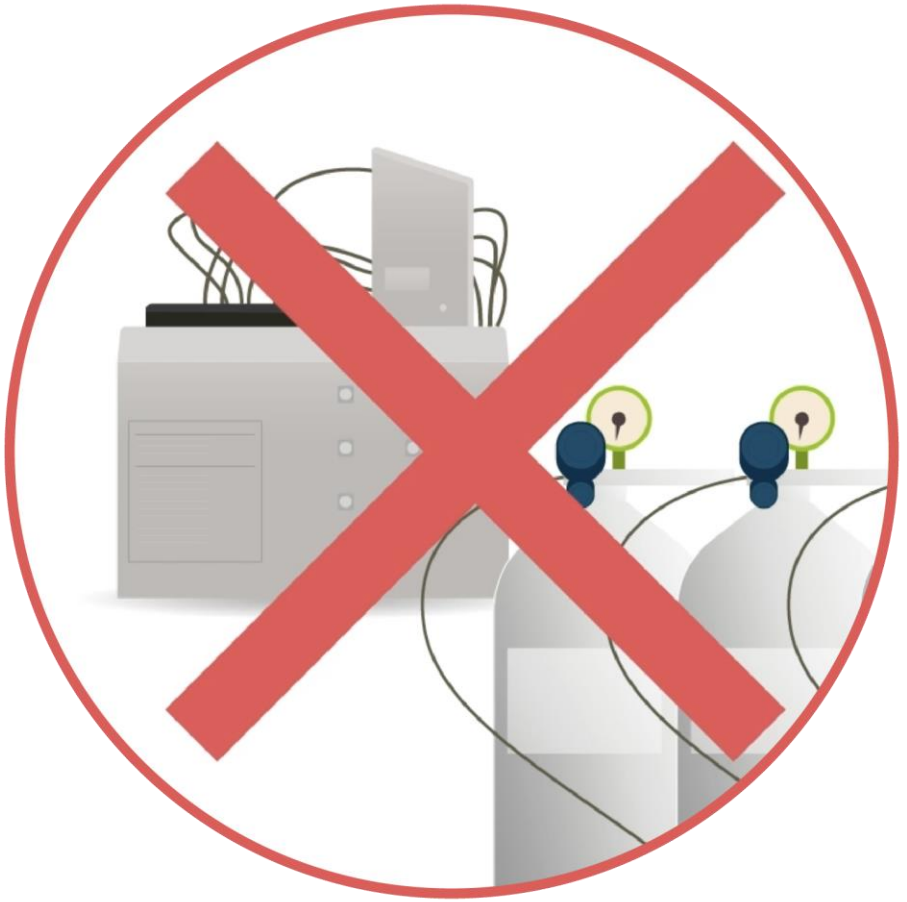
Pending:
CE Marked — EMC Directive (2014/30/EU)
Ensures the device meets European standards for electromagnetic compatibility and safety.
ATEX Certification — II 2 G Ex ib IIA T3 Gb
Approved for use in potentially explosive gas atmospheres (zones 1 & 2), ensuring safety in hazardous environments.
(Operating temperature: -20°C to 50°C)

Unlocking the Business Value

HYBRID™

A New Standard in Leak Detection Technology

- **Removal of self-calibration stations**
  save $$$ by eliminating calibration stations external calibration results in high costs
- **Time Efficiency**
  - calibration is fast and convenient and doesn't require any additional operational time
- **User Confidence**
  - daily self-calibrations installs confidence in user that the instrument will provide accurate results
- **Device-to-cloud connectivity**
  for streamlined regulatory recordkeeping and operations management
- **Long term cost savings**
  save $$$ by eliminating due to reduction in labor, maintenance and material costs with calibration stations



Unlocking the Business Value

Purpose-Built for Your Leak Detection Needs

- The products share common features – battery interface, add-on modules (CGI) and the “head”.
- The Hybrid “Head” (or “brain”) is a detachable module which provides a common user interface over the product family.
- Head module contains the display, main processor and external communication systems (e.g. Wireless connectivity).

Head Module

Service + Head

CGI + Head

Bar Hole Sampler

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Emerging Technologies - Bar Hole Sampler

Overview

3 in 1 Tool for Pinpointing, Quantification & Purging Underground Natural Gas Leaks

- Developed in collaboration with Sensors Inc.
- Internal Pump for Gas Concentration Measurements
- Internal Pump for Purging (0.75 CFM)
- External Compressed Air Pump for Purging at 3-5 CFM

Bar Hole Sampler

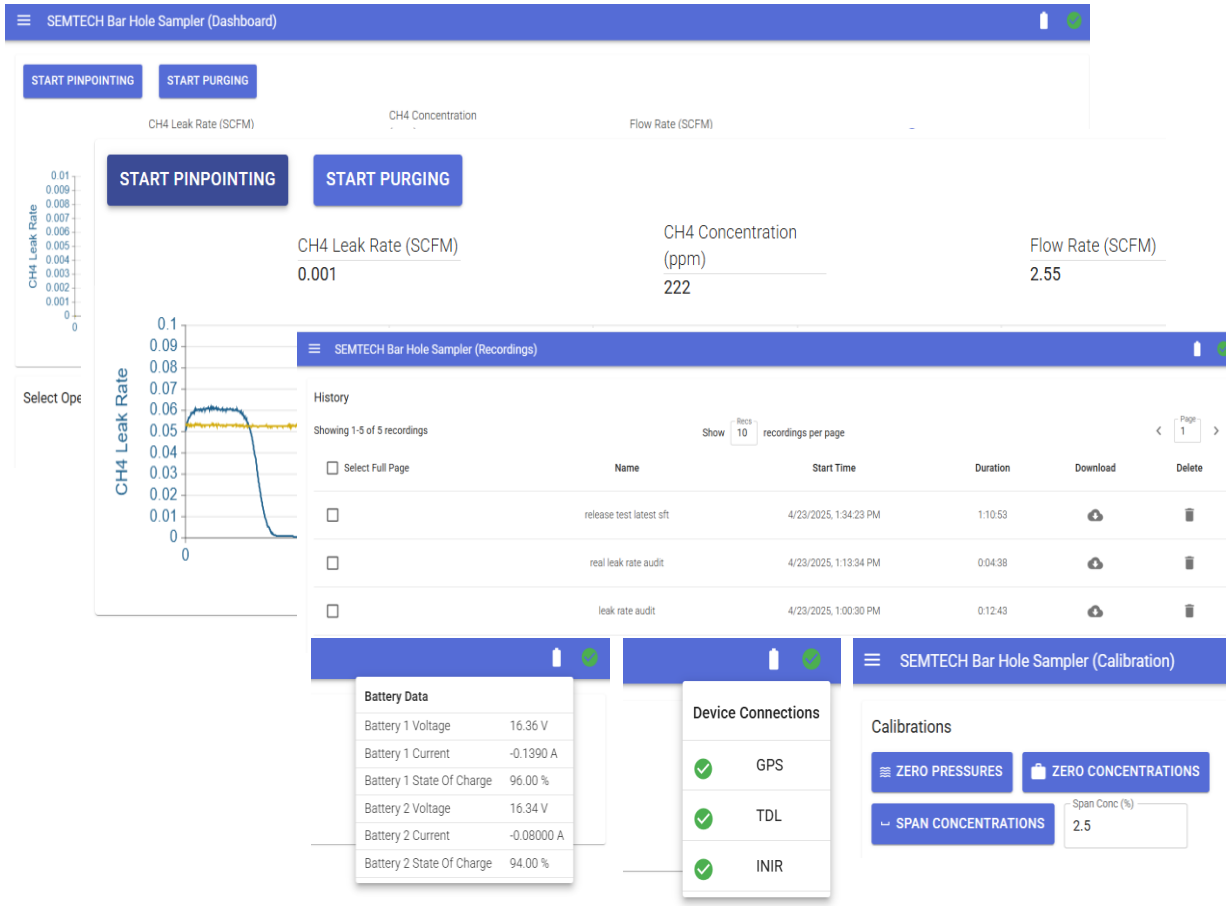
Highlights

- Methane Concentration Measurements (0.03 to 100%)
- Pinpointing (Small Internal Sample Pump)
- Quantification
  - Flow rate in CFM
  - % gas concentration
- Purging
  - 0.75 CFM Internal Pump
  - 3 CFM (External Compressed Air)
- Weight < 10 lbs.
- Calibration, Configuration Utilities

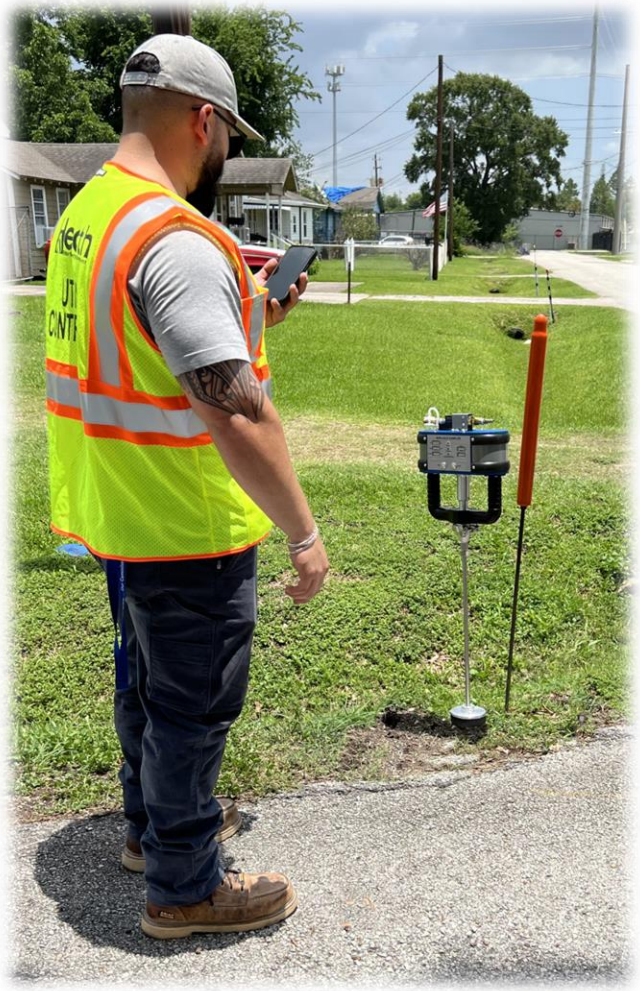
Seamless Data Access & Export

Intuitive User Interface

- Wi-Fi Web-Based Graphical User Interface
- Pinpointing, Quantification and Purging Graphical Utilities
- 1 Hz Data Recording
- Calibration, Configuration funtionality



Seamless Data Access & Export



Export and Analyze Data

- Export test data via the web browser in CSV format
- Over 50 Data points available for analysis
- Easily import to third-party systems

Captured data includes :

- Time
- Flow Rate
- Leak Rate
- Volume

Inside Gas Leak Detection

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Connected & Non-Connected Models

- Natural Gas & CO Alarm (DD622NCV)
- Natural Gas Alarm (DD620NV)
- LoRa WAN Network Compatible (806NLR)
- Itron Network Compatible (810NIT)

- Examples of Data from Connected Devices
  - Timestamp of payload message
  - Hours spent powered on
  - Status Information

New Cosmos USA technology easily integrates with utilities' wireless network.

Codes and Standards

UL1484

These requirements cover gas detectors intended to detect flammable gases such as Natural Gas and Propane The UL Standard will be lowered from 25% to 10% LEL.

NFPA715

- Approved and released May 2022. Natural gas
- alarms are recommended in every room where there is a gas appliance present
- Installation must be up to 12" from the ceiling

Proven Nuisance Resistant Gas Alarm

- Testing by the Gas Technology Institute (GTI) reveals the MEMS sensor's immunity to typical household chemicals, due to the filter cap placed on the sensor.

- Virtually eliminates nuisance alarms

Table 3. List of Test Household Products and Chemicals

Test Material	Supplier or Brand
Methane	Matheson (tech grade)
Propane	Matheson (CP grade)
Ethanol	Sigma-Aldrich (bio grade)
Acetone	Sigma-Aldrich (industrial grade)
Paint Thinner	Mineral Spirits (odorless)
Laundry Detergent	Tide® Advanced Power Plus Bleach Alternative Original Scent HE
Stain Remover	Carbona® Stain Devils
Cyanoacrylate Adhesive	Super Glue®
Bathroom Cleaner	Scrubbing Bubbles®
Home Dry Cleaning Kit	Dryel®
Fabric Freshener	Febreze® Air Effects - Linen & Sky
Aerosol Hairspray	Suave® Max Hold Unscented
Furniture Polish	Old English® Almond
Bleach	Clorox®
Household Ammonia	Essential Everyday®
Duster Spray	Blow Off®
Disinfectant Spray	Lysol®
Oven Cleaner	Easy-Off® Heavy Duty
Rust Stain Remover	LIME-A-WAY®
Hydrogen Sulfide	GTI technical blend

Validated by Gas Technology Institute report, Evaluation of Residential Methane Detectors, Phase III. Project No. 21696

Natural Gas Leak Simulation

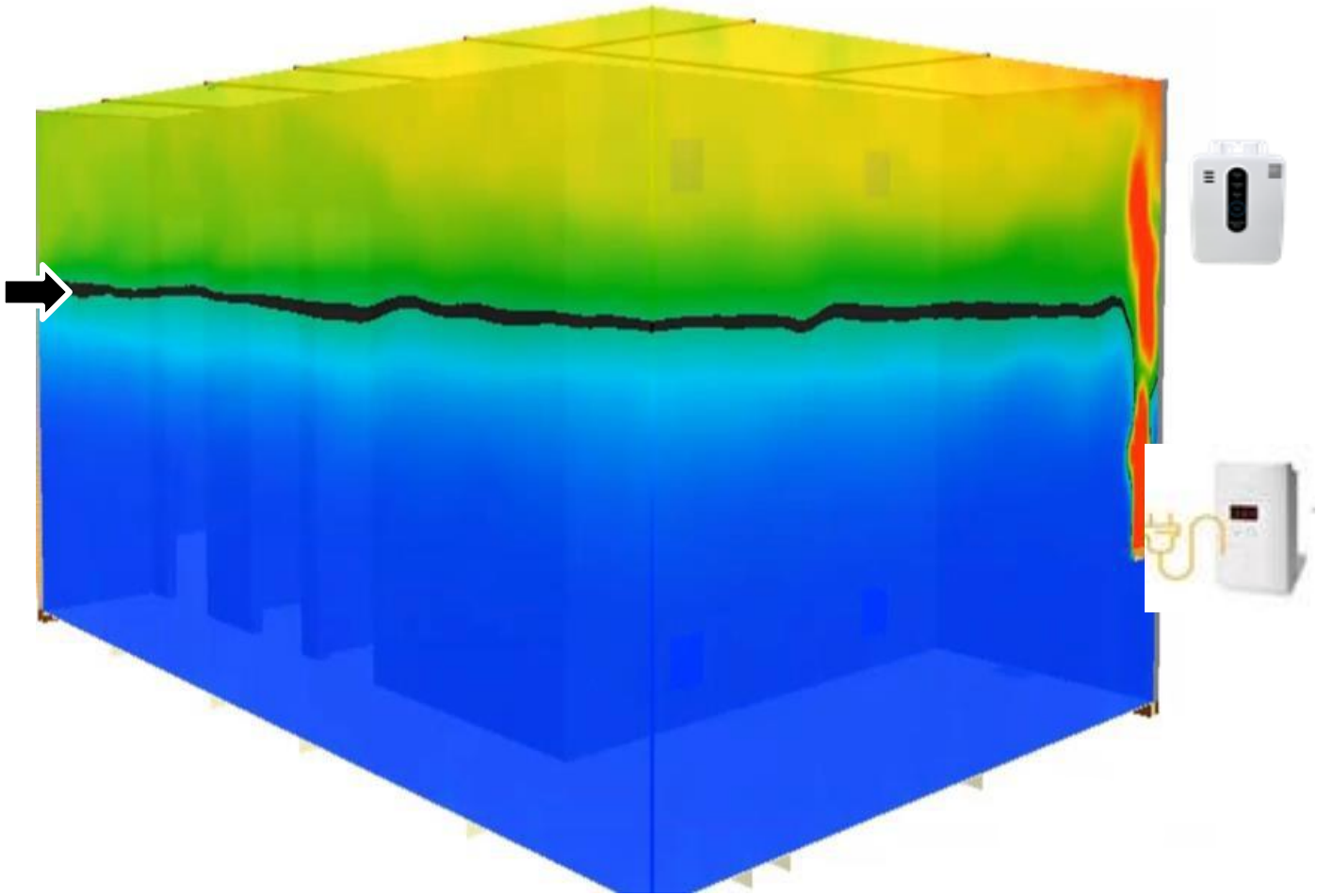
Color Key:

Natural Gas Accumulation

Undetectable levels of natural gas

Source: Fire & Risk Alliance

10% LEL



Denova Detect battery powered alarm installed near ceiling 10% LEL

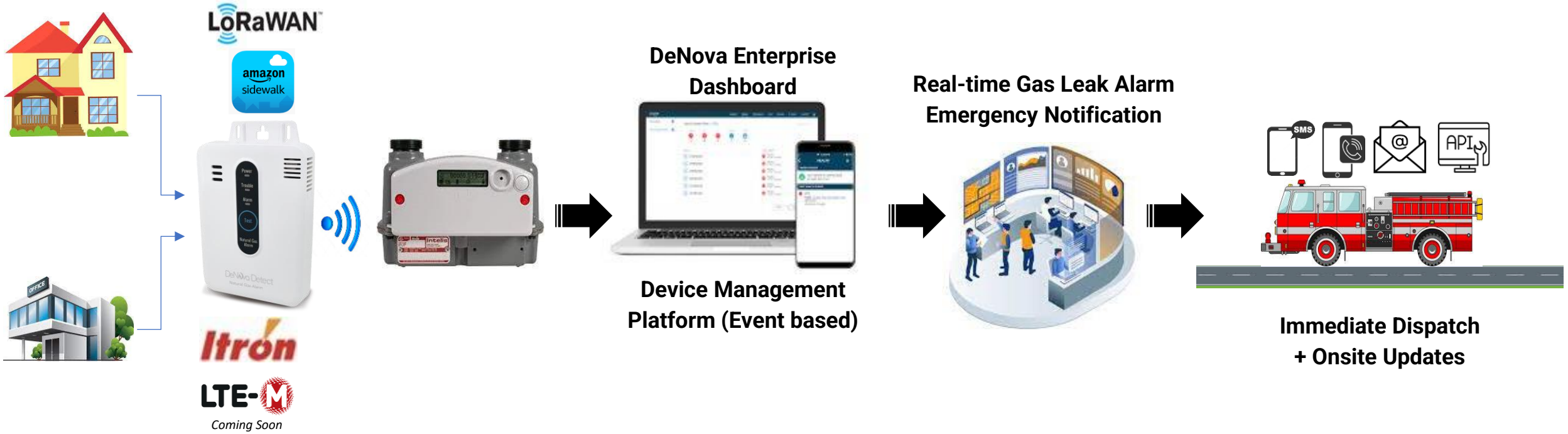
Competitors plug-in alarms mounted near the floor.

Dangerous level of gas has not reached floor level at 20-25% LEL

Due to the lower alarm threshold, DeNova Detect gas alarm enables occupants to respond approximately 11 minutes sooner than a typical gas alarm

Smarter Gas Leak Detection

Automated 'Chain-of-Communication' options for Utilities



Detection > Notification > Response

ConEd Case Study - New York

- Started Mass Deployment of 400K AMI enabled natural gas detectors starting in 2020
- 275,000 units installed through YE 2024
- Over 5,000 alarms received – 15% from underground utility infrastructure
- ONE false alarm due to a defective detector
- Several serious events averted due to the early warning of gas leaks
- Separately ~70,000 standalone natural gas alarms distributed to targeted customers

Virtually zero false alarms in the field

Questions?