Tunable Diode Laser Absorption Spectroscopy Technology for Leak Survey and Mobile Leak Detection



Your Safety...Our Commitment www.heathus.com

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RMLD-CS[™] and RMLD-FR [™]

- Technology: (TDLAS) Tunable Diode Laser Absorption Spectroscopy
- As laser passes through the gas plume, the methane absorbs a portion of the light, which the instruments detects.
- In an open path system, a light wave is projected from the transceiver through the open air over a known distance and returned to the transceiver for analysis.
- The results will indicate a total mass of the molecules being monitored – digital reading.



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Specification – Both CS And FR

- Detects methane from a remote distance
- Detection Distance up to 100 feet based, line of sight without having to get "up close and personal" with your basic leak survey instrument.
- Beam size is conical in shape with a diameter of 22 inches at 100ft.
- Built in daily Self-Test: verifies operation and adjust laser wavelength for maximum sensitivity.



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RMLD-Complete Solution (CS)



- Internal Data Logging
- GPS Bluetooth (BLE)
- Color Camera



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- Can see through most windows
- Intrinsic Safe
- Detects up to 100 feet away
- Specific to methane only



Detection Localinn	29.173650965,-76.8425773294	
Child Emission Count	t	
Indication Start	February 1, 2018 (PE33 17 4M	Indication Stop
andication 1 respla (8)	20.49	Indication Doration
Car Tarrert Min (mph)	10.31	Car Opeed Max (mp
car tipred at Peak pripts	15.98	Wind Speed (implic
CHI, Peak Rose (ppril)	0.26	Daneline CDH (ppm)
Emission Indication Estin	nates	
Guarce Location	29 172406697, 76-8425296654	
Sisterce Direction (deg)	171.40+7-10.00	Distance (0)
tisaasce Arms tiker (FI2)	705.80	
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OPIR Self Test

🖶 Sign Out





RMLD-CS: Optional Mobile App

- Available for iOS and Android devices
- Connect to RMLD
- Set GPS logging intervals
- View current readings and alarm from device
- Log location of leak
- View survey map upon completion
- Send or save kml, csv, or zip files
 - Kml contains coordinates only
 - Csv contains phone and instrument coordinates, instrument data, and time stamp



RMLD-QGI (Quantitative Gas Imager)



 Lower-cost, higher-performance, enhancedfunctionality replacement for traditional, passive non-quantitative, mid-infrared Optical Gas Imagers (OGI) for LDAR compliance.

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Enable prioritization of repairs based on leak rate concentration, reduce costs to locate highpriority leaks, enhance worker and public safety, support Greenhouse Gas Inventory (GHGI) estimation and reduce Greenhouse Gas (GHG) environmental impact.





Discover AMLD[™] Video





Gases Detected	Simultaneous Detection of Methane and Ethane	
Sensor Technology	Open-Air Fixed Path Mid-IR TDLAS	
Consitivity & Possilution	Methane: < 50 PPB at 10 Hz, < 20 PPB at 1 Hz	
Sensitivity & Resolution	Ethane: < 10 PPB at 10 Hz, < 4 PPB at 1 Hz	
Selectivity	No Cross-sensitivity to humidity, other hydrocarbons or industrial gases	
Response Time	Sample frequency of 100 Hz, Data update rate of 10 Hz	
Accuracy	±10% of reading for Methane/Ethane in Natural Gas, ±50% for quantification	Attack distance of
Calibration	Field Calibration using self-test with a Natural Gas Calibration Cell	
GPS	GNSS-INS system at 10 Hz, < 1 m accuracy, Inertial navigation	
Pottom & Display	All sensors powered with Re-chargeable batteries (8-10 hr life).	
Battery & Display	Rugged Windows-10 Vehicle Mounted Tablet with HD display	AA
Data & Connections	Robust Bluetooth 5 (BLE): No Wires!!	U SE
Data & connections	Full Suite Cloud Based Leak Survey Analytics	i i
User Interface & Reports	Simple intuitive and graphics rich touch screen operation Real Time Leak Detection Post-processed Leak Detection & Leak Localization	N RE AND AND AND AND AND AND AND AND AND AND
	Leak Survey Coverage Area Emission Quantification	
Operation while Driving	Hands off voice alerts, instructions and commands	ALL DALLARD AND ALL AND A







The importance of sample rate

- 100Hz equals more data aggregation enabling better decisions for true leak detection.
- Higher precision localization.
- Drive routes faster



Open vs. Closed Path Detection





Early blind survey testing

- 98% Find Rate for all true natural gas leaks.
- Leak indications were verified with follow up survey.
- Less than 15% False Positive
- Continuously updating detection algorithm and LSA modules





SEARCH Region

Interior

Symps

Surveys 1

Address pools 1

All salected (10)

None selected

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Leak Survey Analytics Suite



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Leak Survey Analytics – LSA

- Connect Leak Survey instruments to common system
- Unique features based on instrument and survey method
- Provide secure access and control for:
 - Data capture
 - Data retention and access
 - Data traceability
- Provide post analysis
 - Quality control
 - Survey management and completion



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Leak Survey Analytics – Specifications

- Application runs on Microsoft Azure Cloud Services Platform
- Instrumentation includes OMD, DP-IR, Mobile Kit, RMLD-CS, etc.
- Different website and portal configurations based upon user:
 - Administrator web portal
 - Field Technician web portal
 - Field Technician mobile application
 - Operator interface web portal

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