EyeCGas Multi for Long Range QOGI

Remote Quantitative Optical Gas Imaging

Quantifying remote, inaccessible emission sources (primarily cold vents) has been one of the biggest challenges for bottom-up tracking. These types of sources are usually the major methane emission sources and must be quantified accurately to fully characterize site-level emissions. Opgal's Long Range Quantitative Optical Gas Imaging (QOGI) software and validation platform address these hurdles directly, providing a comprehensive solution that fulfills strict international regulatory requirements and framework standards.

Any elevated source being quantified against a sky background is considered a remote and long-range emission source, which cannot be quantified by a Hi-Flow Sampler or bagging. These cold vents can range from as close as 5 meters to distant sources over 100 meters away. However, most source vents are below 100 meters, and for most plume physical sizes, a standard lens should be used for proper plume capture by the camera frame.

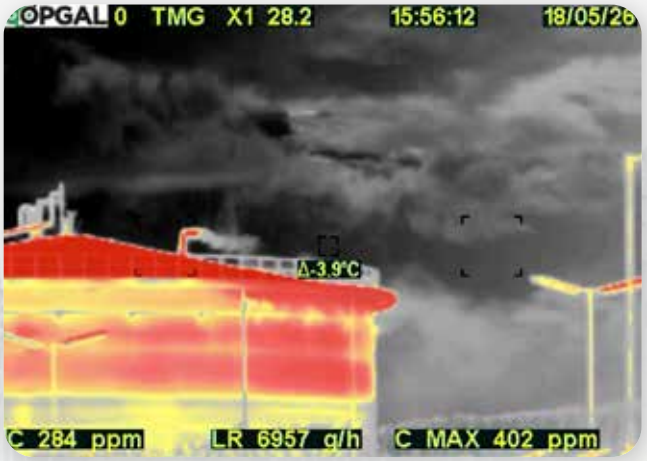
Core Capabilities of Opgal's Long Range QOGI

Real-Time Screening

Allowing operators to easily select from a list of predefined gases, including methane.

Post-Analysis Validation

The built-in screening automatically saves all thermometric and ancillary data for post-inspection verifications and operator training. The validation process before reporting successfully overcomes shifting background conditions, such as cloudy skies, ensuring consistent data integrity under varying field environments.



The Autonomous Validation Platform

The autonomous validation platform performs the following functions:

- Confirms plume capture – Ensures the use of the right lens for the scenario.
- Filters out changing background conditions from the analysis, such as moving clouds.
- Verifies relevant air temperatures.
- Calculates atmospheric concentration-length corrections based on environmental humidity and temperature conditions.
- Verifies the plume's vertical size.
- Verifies the normal component of wind speeds.
- Reports validated emission rates for reporting, along with the associated validated uncertainty.
- Provides explanations on specific validation processes.
- Provides scored feedback for the operator’s siting errors.

Note: All of the above factors have a great impact on emission calculation accuracy. Even data collected by a certified and experienced operator must be validated before reporting.

Regulatory Compliance & Field Application

Level 4 Validation

The QOGI software is validated as the Best Available Technology (BAT) for Level 4 source-level/bottom-up reporting of remote, major emission sources. The real-world feasibility of this technology is backed by empirical data from a landmark European Gas Research Group (GERG) blind controlled-release study titled, "Assessment of current methane emissions quantification techniques for natural gas midstream applications." Opgal’s QOGI significantly outclassed alternative source-level quantification technologies featured in the study, especially on remote (long-range) vents.

Bridging to Level 5 Reconciliation

By accurately quantifying major source-level emissions, Opgal's solution enables operators to reconcile Level 4 bottom-up data with Level 5 site-level/top-down estimates (such as satellites, continuous fenceline monitoring, or drones) with significantly greater certainty. This closes the data gap required by advanced frameworks like OGMP 2.0.