

CASE STUDY

DURABOOK TEAMS WITH PROVIDENCE PHOTONICS AND TELEDYNE FLIR TO PROVIDE A POWERFUL AND ADVANCED SOLUTION FOR QUANTIFYING FUGITIVE GAS EMISSIONS

CUSTOMER

Teledyne FLIR

CHALLENGE

After the qOGI technology had been on the market for a few years, collaborative technology partners, Providence Photonics and Teledyne FLIR, wanted the ability to offer customers a total system solution that would be a significant leap ahead of the first-generation technology.

SOLUTION

Providence Photonics identified that the Durabook R11 fully rugged tablet would perfectly fit the needs of Teledyne FLIR's customers around the world, making the R11 the backbone of their next generation qOGI system, which would be designated the FLIR QL320.



Traditional operation of an Optical Gas Imaging (OGI) Camera for handheld inspections.

THE SITUATION

Quantitative Optical Gas Imaging (qOGI) is one of the newest among the many technologies that Teledyne FLIR designs, develops, manufactures, and distributes for the oil & gas industry. *A somewhat new technology, qOGI is quickly proving itself to be a viable alternative to traditional methods that utilize toxic vapor analyzers as a tool for oil and gas industry personnel to quantify gas leaks in the field.*

Hydrocarbon gases are invisible to the naked eye, but they normally can be visualized using an infrared OGI camera. Unfortunately, these cameras are limited to providing a qualitative analysis (indicating a leak is occurring) and giving little indication of how much is leaking. Now, a FLIR OGI camera combined with advanced qOGI technology can visualize and quantify such leaks. Unlike traditional methods, qOGI offers leak detection and repair (LDAR) professionals the ability to accurately measure gas leaks from a safe distance, vastly improving worker safety while fostering greater environmental stewardship and more cost-effective operation.





FLIR GFx320 and QL320 (engineered from a Durabook R11 tablet) used at an oil and gas facility to quantify fugitive emissions.

THE CHALLENGE

After the qOGI technology had been on the market for a few years, collaborative technology partners, Providence Photonics and Teledyne FLIR, wanted the ability to offer customers a total system solution that would be a significant leap ahead of the first-generation technology. Together they decided that they would have to go back to the drawing board with everything they had learned and redesign the solution from the ground up in an effort to provide the best solution to their customers. As a result, they went looking for a proven, rugged tablet – portable, easy to use, and able to provide results in the field within seconds – to be the physical backbone of the next generation qOGI technology to package with both their existing and future Optical Gas Imaging cameras to be used by LDAR technicians. Ideally, the new tablet would have a larger, brighter sunlight-readable display for improved visibility, as well as a 10-point capacitive multi-touch screen that would work for the user, whether they use their bare hands or gloves or a stylus, and that would operate in any weather conditions—rain or shine—without having to make any camera modifications or purchase any additional accessories.

THE SOLUTION

Providence Photonics identified that the Durabook R11 fully rugged tablet would perfectly fit the needs of Teledyne FLIR's customers around the world, making the R11 the backbone of their next generation qOGI system, which would be designated the FLIR QL320. The custom-built R11 is specifically designed for and can be connected instantaneously with any of FLIR's hydrocarbon OGI cameras, such as models GF620, GFx320, and GF320.

With the option to record data to be post-processed later or to instantaneously capture and quantify leak data while in the field, there is no need for a secondary sampling of leaks via a toxic vapor analyzer or other similar tools. In addition, Teledyne FLIR's qOGI technology solutions do not require personnel to have close contact with the gas to measure emission rates, making it a safer solution for quantifying difficult-to-measure gas leaks.

The QL320 system can synchronize with multiple optics and temperature ranges of the OGI camera and be used to post-process recorded leaks without the need to tether the camera to the tablet. Moreover, the Durabook R11 was the perfect fit - a sleek, lightweight rugged tablet with an IP65 rating and Class 1; Division 2 certification,

making it suitable for use year-round in industrial settings and hazardous environments.

The fully rugged Durabook R11 tablet provides Teledyne FLIR and its customers in the oil and gas industry with many advantages. It simplifies the visualization and measurement of gas emissions on a large 11.6" sunlight-readable display utilizing Durabook's trademarked DynaVue® technology. Quantified results are immediately shown in the field when the FLIR QL320 is tethered to a camera. It is a much safer and easier-to-use solution for quantifying gas leaks. It gives users the ability to effectively capture, quantify, and report leak data, provides users with the ability to archive measurements, visualize the data through the colorized plume in the video along with the original infrared video stream, and

"After extensive due-diligence and 'test driving' a number of potential manufacturers and solutions, including the Durabook R11 rugged tablet, and getting to know Durabook executives and first-line staff, we knew that we had found the perfect manufacturing partner as well as the best tablet for the job."

Johnny Nelson,
Operations Manager
of Providence Photonics



archive the raw image data for post-processing or further analysis later on. Plus, the R11 is especially resilient to accidental drops as well as water and dust ingress, designed tough for industrial environments, making it an ideal tablet-based system rugged enough for use in gas fields, refineries, or other industrial settings.

Additionally, Durabook's famed customer service assures Providence Photonics, Teledyne FLIR, and their customers of quality support and service. This is a critical point, as many users of the qOGI-based cameras and Durabook R11 solution are widely used in gas fields, refineries, or other industrial areas, where any downtime could lead to severe losses in productivity and profits. It is vital they have issues resolved as quickly as possible so they can return to the field at the earliest. Teledyne FLIR can confidently sell a system

solution knowing Durabook technical support and assistance is close at hand.

THE RESULT

The collaborative partnership between Durabook, Providence Photonics, and Teledyne FLIR has led to a powerful and advanced product providing an important solution to the oil and gas industry, quantifying emissions from leaking components. In addition, this unique technology allows operators to ensure safer inspections than ever before by providing a way to measure gas emissions from distances where the user is outside of the gas plume. Whether the end goal is to increase production efficiency, meet emissions mitigation metrics, or simply keep employees safe, the FLIR QL320 solution, based on the Durabook R11 tablet, stands alone in the effort to quantify fugitive gas emissions.

“Durabook’s exceptional pre-sale engineering and post-sale support and service added up to a win-win partnership for Teledyne FLIR since any downtime our customers’ experience would negatively impact their productivity. It is vital they have issues resolved as quickly as possible so they can return the units to the field.”

Craig O’Neill,
Global Business Development
Director of Optical Gas
Imaging for Teledyne FLIR



The FLIR GFx320 Class 1; Division 2 OGI Camera and FLIR QL320 quantification tablet.