OIL AND GAS INDUSTRY

Solutions for extraction, production, transportation, and refining
The oil and gas industry faces many maintenance challenges. Pipes fail—releasing fugitive emissions or liquid leaks into the environment. Motors, pumps, and valves break down. Invisible oil and gas leaks are difficult and time consuming to detect using traditional inspection methods, especially when there are many components to inspect. If problems aren’t discovered early, they could lead to millions of dollars in financial or equipment losses, negative environmental impact, or safety issues for personnel.

FLIR optical gas imaging (OGI) cameras enable inspectors to detect leaks faster and pinpoint the source immediately, leading to prompt repairs, reduced industrial emissions, and greater conformity to regulations. FLIR offers a complete range of thermal imaging, gas detection, and test equipment for diagnosing potential problems before they turn into expensive failures. By using FLIR OGI technology to its full potential, the industry can create a safer and more efficient environment for its staff and clients alike.
EXTRACTION AND PRODUCTION

Offshore Drilling
Inspect aging offshore platforms with optical gas imaging

The offshore oil and gas industry faces unique challenges. Due to advances in geology and drilling techniques, many older, aging platforms are forced to extend beyond their designed lifespan and continue production. The industry is urged to meet methane emissions reduction targets and measure fugitive methane releases to determine a baseline measurement that future reductions can be assessed against. Through regular thermal imaging inspections, offshore drilling companies can rapidly detect and locate fugitive gas leaks that could cause a potential platform shutdown.

Natural Gas Compliance
Meet regulatory compliance requirements with optical gas imaging

In many parts of the world, government influence on the natural gas industry requires companies to meet federal or local regulations in order to reduce emissions. These regulations mandate that natural gas compressors perform regular inspections for leaks. Various technologies and methods are available to accomplish these goals, including toxic vapor analyzers—or “sniffers”. But these solutions can be labor intensive as there are often hundreds if not thousands of components to inspect at remote locations. FLIR OGI cameras can help natural gas industry professionals inspect locations up to nine times faster than with other technologies, precisely identify the leak location, and successfully maintain regulatory compliance.

Natural Gas Separators
Inspect sand levels and emissions with thermal imaging

In the fracking process, gas is separated from its伴水and water and is often stored in tanks. Through this process, methane can build up in the heating element, causing damage to the separator. FLIR OGI cameras can help oil and gas companies inspect locations up to nine times faster to locate fugitive gas leaks and prevent potential platform shutdowns.

To learn more about FLIR solutions for the oil and gas industry, go to www.flir.com/oilandgas/extraction-production

Solutions

FLIR GFx320
FLIR E8-XT
FLIR FC-Series
FLIR Saros™ DH-390 Dome
FLIR T530
FLIR QL320

Natural Gas Separators
Inspect sand levels and emissions with thermal imaging

Upstream and Midstream Security
Protect extended and near perimeter security for gas co-locations

Many oil and gas companies manage miles of gas lines within their operations and have an extensive portfolio of real estate. This can be challenging to manage and maintain effectively. Using a FLIR thermal security solution, companies can optimize and manage their gas lines with confident perimeter protection, and push the perimeter further away from the fenced line. A thermal analytics offers companies to support perimeter protection without a large investment in additional fences and of personnel.

Solutions

FLIR GFx320
FLIR E8-XT
FLIR FC-Series
FLIR Saros™ DW-380 Dome
TRANSMISSION AND TRANSPORTATION

Natural Gas Compressors

Locating gas leaks with optical gas imaging or visual borescope inspections.

Compressions can fail because of poor packing seals, internal component issues, and loose or broken wires. Maintenance teams need to ensure there is no excess and to determine if there are any leaks. To do this, the team will have to determine if there is a gas leak or liquid leak.

To learn more about FLIR solutions for the oil and gas industry, go to www.flir.com/oilandgas/transmission-transportation

Task Level Gauging

Using thermal imaging to save liquids, solids, and foam levels is a task.

Tank level gauging is necessary for various applications in the oil and gas industry. Maintenance teams need to inspect the tank level gauges to ensure they are working correctly. This will help in reducing waste and energy losses. Thermal imaging allows oil and gas companies to gauge tank levels without direct contact. It can also help them identify small changes in temperature between liquids or solids of varying densities.

Inspecting Motors, Pumps, and Valves

Prevent downtime with thermal imaging.

A motor breakdown, pump failure, or valve leak is always a critical issue in the oil and gas supply chain. They can result in production loss, environmental issues, and shutdowns of equipment in a production line. That’s why inline, pump, and visual inspections are critical. FLIR thermal imaging technology is a study critical part of predictive maintenance programs for so many businesses.

Pipeline Inspections

Detect gas leaks from pipelines with optical gas imaging.

Oil and gas pipelines often stretch long distances carrying a variety of materials. Sometimes, the pipes fail, releasing fugitive gas emissions or liquid leaks into the environment. Pipeline leaks often start small, making them challenging to locate and to fix. FLIR gas detection cameras can detect leaks by clearly identifying gas emissions along both onshore and offshore pipelines and entire pipelines. Maintenance teams can use gas detection cameras along with automated remote inspections to ensure the pipelines are free from any gas leaks.

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Flare Stack Monitoring
Using automated infrared cameras to monitor flare stacks

Flare systems are often a last line of defense in preventing dangerous hydrocarbon pollutants from entering the atmosphere. Various technologies have been used to monitor flares, but they are often ineffective at minimizing smoke from stack combustion — which is an important indicator of burn efficiency. Flaring without the pilot flame releases gas into the air, increasing the risk for explosions and negative environmental impact. Thermal imaging technology can help inspectors recognize the difference between the heat signature of a flare stack flame and the surrounding background (usually the sky or clouds).

Critical Vessel Monitoring
Automated and continuous monitoring with thermal imaging

Critical vessels (such as gasifiers) can reach temperatures in excess of 500°C internally and must be kept stable in this process. If temperatures are not kept under control, the rising heat could result in a hazardous explosion. The vessels are recorded and controlled to ensure the skin (often made of iron) doesn’t rise in temperature and become ductile. Thermal imaging technology can play a key role in continuously monitor critical vessels in order to predict potential problems before they occur. FLIR technology provides a full picture of potential problems, as well as the areas between thermocouples that are often missed.

Electrical Inspections
Prevent distribution system failures and breakdown with thermal imaging

Electrical distribution boards are typically housed inside cabinet enclosures, making them difficult to inspect for impending failures. When electrical connectors and components break down unexpectedly, the board may be unplanned downtime, costly repairs, production loss, and an increased risk of fire. That’s why it’s imperative to perform routine checks of electrical distribution systems for signs of overheating, as this is a potential indicator of failure. Conducting electrical inspections using FLIR thermal technology will help you to prevent any potential issues before they occur, and breakdown. Thermal imaging technology can provide key information that visual inspections often can’t. This gives you the opportunity to solve electrical issues in part of potential maintenance before it becomes a serious and costly problem.

To learn more about FLIR solutions for the oil and gas industry, go to www.flir.com/oilandgas/processing-refining

Fired Furnace Inspection
Measure furnace tube metal temperatures through a gas flame

Tubes on a firebox can overheat and rupture, starting an uncontrolled fire and other collateral damage. Refractory damage and improper burner alignment can cause overheating and breakdown, resulting in downtime and a personnel safety issue — especially near inspection ports and ladders. To ensure the contract of the external metal sheath, tubes, and supports an in place, automated infrared thermal imaging can be used. This kind of solution allows inspectors to look through the flames and directly observe the internal temperature of the burner, and any internal rusting. Inspectors can accurately measure the true hot spots and make recommendations on how to reduce the firing rate in the furnace and avoid an unexpected tube rupture.
Thermal Imaging Value

The greater your knowledge of thermal imaging, the greater the dividends for your company and your career. While FLIR cameras can be intuitive to use, only expert training will give you the skills to take full advantage of your investment. That’s why the Infrared Training Center (ITC) offers classes for oil and gas industry applications—from free online courses to advanced certification training.

ITC courses include:

- Optical Gas Imaging Certification Courses (I & II)
- fugitive Emissions Monitoring (U.S. Only)
- Level I, Level II, and Level III Thermography
- IR Electrical Inspection
- IR Mechanical Inspection

ITC courses provide:

- Industry-leading, high-quality interactive instruction
- The most qualified international instructors
- The most extensive hands-on laboratories
- ISO 9001-registered
- Optional online training courses

Attend classes at our training center, locally at one of our regional classes, or in your facility with our on-site service.

For a complete list of courses and a current schedule, visit infraredtraining.com or call 1-866-TrainIR (866-872-4647).

SOFTWARE AND MOBILE APPS

FLIR helps you work more efficiently and boost productivity through software suites and mobile applications for Android and iOS devices.

SOFTWARE

FLIR Thermal Studio™ offers the advanced processing capabilities you need for sophisticated thermal analysis and increased productivity. Use this software to manage thousands of thermal images and videos, as well as to automate expert design and comparison features so you can create professional reports. Available in over 70 languages on a stand-alone Windows application. FLIR Thermal Studio is available for a free trial download or for purchase/registration.

FLIR Tools for PC or Mac OS is designed to provide an easy way to create comprehensive reports on your computer. With this free software you can change image settings, add notes, temperature graphs, and inside standard reports. Upgrade to FLIR Tools Advanced Thermal Analysis software for cutting edge controls for grouping images, object identification, generation, sorting reports, and immediately generating comprehensive thermal inspection reports. Learn more at flirtools.com and flirtools toxicity.

APPLICATIONS

FLIR InSight™ Inspection Management Application is a professional inspection tool designed for automated inspection processes and simplifying data collection and reporting. Use this application to plan and prepare for inspections, collect inspection data, and deliver those results to your team or clients through secure portal.

The FLIR Tools mobile app for Android and iOS allows the same great functionality as desktop software, optimized for your smartphone or tablet. Access the FLIR Tools mobile app for free from the Apple App or Google Play stores.

THE INFRARED TRAINING CENTER

FLIR Software Development Solutions

FLIR Software Development Kit (VEDA) SDK allows companies to use their own Computerized Maintenance Monitoring Systems (CMMS) to import key data from FLIR thermography and FLIR Tools software. FLIR software, based on Android and iOS mobile platforms, offers a high level of flexibility combined with advanced reporting in a compact form factor.

Software

FLIR Thermal Studio,

FLIR Tools,

FLIR InSight,

FLIR Tools Mobile App

Mobile Apps

FLIR Gas Meters,

FLIR Meters

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