Press release
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Endress+Hauser
People for Process Automation

Raman analysis proves its worth in LNG custody transfer

GERG industry study compares methods for measuring composition and energy content in LNG

Endress+Hauser Raman spectroscopy-based analyzer systems are a reliable and low-maintenance alternative to traditional gas chromatography (GC)/vaporizer systems for liquefied natural gas (LNG) composition and energy content measurement during custody transfer transactions. This is the result of a years-long study of the European Gas Research Group (GERG), representing 33 members from 15 countries across Europe, comparing different methods.

“Raman spectroscopy is swiftly gaining traction around the world as a robust, efficient, and economical analysis technique for LNG composition measurement,” said John Schnake, Managing Director and Corporate Director Process Analyzers at the Endress+Hauser Group. “Our Raman instrumentation allows companies to have confidence in the accuracy and precision of their LNG measurements during critical custody transfer transactions with a significantly reduced maintenance burden.”

Supporting the global energy transition

As the world strives to reduce greenhouse gas emissions and cope with energy supply chain disruptions, demand for LNG as a means to efficiently transport large quantities of natural gas around the world is skyrocketing. One of the most critical steps in the LNG process chain is the transfer of custody during LNG transport by land and sea. At each key point of contractual exchange, fast and reliable LNG composition measurement is essential. Even tiny differences in calorific value can alter the value of an LNG load by hundred thousands of euros.

Certified and validated LNG data

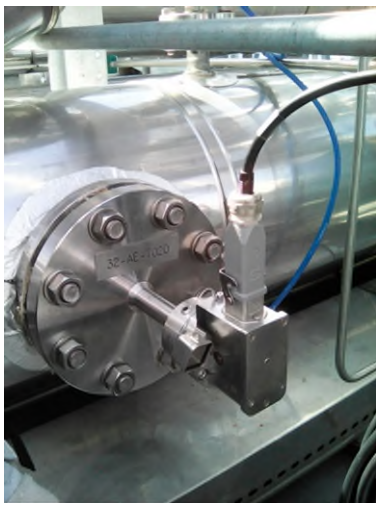
The aim of the GERG evaluation project was to validate the measurement capabilities of Raman technology to deliver reliable, accurate and precise composition measurements for energy calculation in LNG custody transfer applications. During the multi-year study, thorough testing was performed at a baseload LNG transfer facility at Fluxys LNG in Zeebrugge, Belgium. To ensure the data met LNG metrology standards, reference LNG samples were provided by EffecTech, a leading provider of inspection, calibration, and testing. Measurements of LNG were taken directly in the liquid phase by an Endress+Hauser Raman system comprised of a Raman Rxn-41 cryogenic probe fiber-optically coupled to a Raman analyzer optimized for LNG.

Reliable Raman measurements with lower operating expense

The published GERG report, “Raman method for determination and measurement of LNG composition,” concluded that Endress+Hauser Raman analyzer systems offer equivalent LNG measurement uncertainty with significantly lower operating expense and technical expertise than traditional GC/vaporizer systems. Not only did the Raman system reduce the complexity of the LNG monitoring system and have faster start-up stabilization times, but it also proved to have better repeatability, responded more quickly to process changes and required no maintenance during the entire evaluation period (experiencing >99% uptime). These results demonstrate the value of using Endress+Hauser

Raman measurement technology for field installations at LNG baseload, satellite, and peak shaving sites, as well as for LNG truck loading and bunkering ships.

“We are pleased the results presented in the GERG study reinforce the value of our Raman analysis portfolio for LNG custody transfer applications,” added John Schnake. “By providing fast and reliable liquid-phase measurement at such vital points in the LNG process chain, our Raman systems play an important role in the evolving global energy transition.”



EH_2022_probe_LNG.jpg
Reliable measurement of the LNG composition with an Endress+Hauser Raman probe in a bunker ship.

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The Endress+Hauser Group
Endress+Hauser is a global leader in measurement and automation technology for process and laboratory applications. The family company, headquartered in Reinach, Switzerland, achieved net sales of approximately 2.9 billion euros in 2021 with a total workforce of more than 15,000.

Endress+Hauser devices, solutions and services are at home in many industries. Customers thus use them to gain valuable knowledge from their applications. This enables them to improve their products, work economically and at the same time protect people and the environment.

Endress+Hauser is a reliable partner worldwide. Its own sales companies in more than 50 countries as well as representatives in another 70 countries ensure competent support. Production facilities on four continents manufacture quickly and flexibly to the highest quality standards.

Endress+Hauser was founded in 1953 by Georg H Endress and Ludwig Hauser. Ever since, the company has been pushing ahead with the development and use of innovative technologies, now helping to shape the industry's digital transformation. 8,600 patents and applications protect the Group's intellectual property.

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Contact
Martin Raab
Group Media Spokesperson
Endress+Hauser AG
Kägenstrasse 2
4153 Reinach BL
Switzerland

Email martin.raab@endress.com
Phone +41 61 715 7722
Fax +41 61 715 2888