

Emerson expands its gas analysis products, further sharpening its market competitiveness

Emerson took over Cascade Technologies headquartered in Stirling Scotland, last year. This acquisition has allowed Emerson to expand its gas analysis portfolio with laser-based measurement analyzers and systems, further strengthening its competitiveness in fields related to industrial emission monitoring, productivity, environmental regulations, etc. MONTHLY KORSHIP had an interview with Sundeep Saraf, Vice President for Rosemount Analytical, Emerson Process Management.



Sundeep Saraf, Vice President for Rosemount Analytical, Emerson Process Management

Cascade Technologies first formed in 2003 as an engineering startup company who developed the first Quantum Cascade Laser (QCL) Analyzer and patented the “chirp” technique. Today, they are the world’s leading developer and manufacturer of QCL analyzers, solving some of the most challenging measurement applications for the process gas, chemical, refining, pharmaceutical and food packaging industries. Emerson acquired Cascade Technologies in December 2014 and it is now a part of Rosemount.

Q: Please explain in detail more about QCL measurement technology and what differentiates it from other gas analyzers.

A: (Sundeep Saraf) Cascade has patented the laser chirp technique, which is a way of pulsing the QCL laser to scan a small spectrum, typically between 1 and 5 wavenumbers. The laser is pulsed very rapidly (typically 100,000 times per second) which has two advantages. Firstly multiple spec-

tra can be averaged to improve signal to noise ratio and give excellent sensitivity, and secondly data is acquired very rapidly (each pulse is less than a millionth of a second) which gives continuous and fast data analysis.

As QCL lasers emit in the mid IR, they can access the strong fundamental absorption bands of many molecules. This gives excellent sensitivity down to ppb level. The technique also offers a wide dynamic measurement range by utilizing absorption lines of differing strength, giving ranges from ppb to % level.

QCL analyzers do not require utility gases and have minimum calibration requirements as the way the concentration is calculated using the Beer Lambert law (first principle physics) means the measurements do not drift with time.

Q: What benefits does QCL provide the Oil & Gas industry?

A: (Sundeep Saraf) The advantages are as mentioned above, but in particular the ability to measure the gas of

Table. Differentiated competitiveness of QCL gas analyzer

Industry Challenges	QCL Solution
Multiple analyzers required for gas measurements	Single analyzer with multi-component capability
High running costs (utility gas, frequent calibration)	QCL system has low running costs – no utility gas required and minimal calibration
Changing gas measurement requirements or different ranges required	QCL system can be upgraded by replacing a laser module (plug and play) to give a different measurement or change the measurement range
Highly skilled technicians required for servicing	Modular QCL system makes servicing easy

interest in a complex background without interference is key. Also the ability to measure multiple species per analyzer cuts down on the number of systems required in a plant and the running costs are lower than other analyzer types as utility gas is not required.

Q: How can one analyzer measure multiple gases simultaneously?

A: (Sundeep Saraf) Using the pulsed chirp technique, multiple lasers can be incorporated into a single analyzer. Each laser can measure between 1 and 3 different components, so for a 6 laser system typically between 10 and 20 separate measurements can be made (application dependent).

Q: What is the plan for development of new products targeting the oil and gas markets?

A: (Sundeep Saraf) Emerson is currently developing a new product for the oil and gas industry. This new product will be capable of measuring H₂O, CO₂ and H₂S in a single flameproof instrument for natural gas quality monitoring. This product is planned to launch towards the end of 2016.

Q: With the acquisition of Cascade Technologies, Emerson now offers a broader range of gas analyzers. Please tell us what growth strategy in Korean market.

A: (Sundeep Saraf) The South Korean market is important to Emerson as we have a solid, long-established base of top customers which represent the leading industrial, oil and gas, and processing companies in the country. We're so pleased to serve this market and are committed to continuing to grow and expand our reach and position in South Korea.

Q: What does the future hold for Rosemount's gas analyzers?

A: (Sundeep Saraf) We will continue developing products that meet customer requirements in not only a cost effective manner, but technologically advanced to support our customers' process availability. Currently, we are developing various products, including CT5100, CT5200, CT5400, and CT5800. ⚓



CT5100 : QCL analyzer for CEMS applications, Hazardous area certified (Ex-p)



CT5200 : QCL analyzer for range of process applications, Hazardous area certified (Ex-p)



CT5800 : Flameproof QCL analyzer for purity applications (high sensitivity measurement of impurities in a sample gas stream, Hazardous area certified (Ex-d)



CT5400 : General purpose PGA – safe area and highly configurable for a range of different applications