talkline

5 Heartbeat Technology[™]

The pulse of your flow measurement

7 Who is Kaiser Optical?

A recent addition to the Endress+Hauser Group





Index

4 Endress+Hauser Canada Partners with Gerrie Electric

A single-source process control solution for process industries



10 Endress+Hauser Installs High Pressure Test Rig in Greenwood, Indiana

The rig can test complete instrument assemblies at pressures up to 15,000 psi to meet customer, insurance and safety requirements

5 Heartbeat Technology[™]

The pulse of your flow measurement



11 Radar steps into new dimensions

Micropilot FMR10/FMR20 – innovative with *Bluetooth*® communication

12 Water and Wastewater

Endress+Hauser Canada with our global industry team creates a simple message for 2017

7 Who is Kaiser Optical?

A recent addition to the Endress+Hauser Group



14 Join our free process automation webinars Ask questions, get answers!

15 E-Direct Quality products can be purchased easily online

Trade Shows 2017

April 19–20	ISA Calgary, with Rockwell Automation, AB
April 23-26	Maritime Provinces Water & Wastewater Association, Halifax, NS
May 7-10	Ontario's Water Conference & Trade Show, Niagara Falls, ON
May 28-30	BC Water & Waste Association, Victoria, BC
June 21-22	Atlantic Canada Petroleum Show, Saint John's, NL
July 19–20	Rockwell Automation On The Move, Toronto Congress Centre, ON
October 15–18	Atlantic Canada Water & Wastewater Association, Charlottetown, PEI
October TBD	CsHm Grand Prairie, AB
October TBD	Northwestern Ontario Water & Wastewater Conference, Thunder Bay, ON

Connect with us

For the latest updates, events and process automation news, join us on our social media channels. Visit Endress+Hauser Canada Ltd on Facebook, Twitter and LinkedIn.

facebook.com/EndressHauser

In linkedin.com/company/endress-hauser-group

Our valued friends, customers and business partners

Dear Reader,

Welcome to the first issue of *Talkline* for 2017. It's hard to believe that we are already through the first quarter of the year. Although most of us didn't have to endure record snowfalls this past winter, I'm sure we all look forward to the return of warm temperatures and long hours of sunshine.

Over the course of 2016 and continuing throughout 2017, we have been making strides in assessing and improving how fast and efficient we are at serving you. We are committed to being the best company you've experienced doing business with and to that end, we are working diligently to ensure you see quality in every aspect of your interactions with us. Our goal is to eliminate any inefficiency or waste that does not add value to you and your success.

In the pages ahead, we share some recent news on our first Authorized Channel Partner, Gerrie Electric. This is a business partnership that offers significant efficiencies and value for customers of both companies. Read about how we are working together to modernize the Canadian manufacturing sector.

In addition, we give you an overview of Kaiser Optical Systems, Inc. — an Endress+Hauser company. Learn about Kaiser's unique measurement capabilities and technologies. Of course, this newsletter would not be complete without sharing the recent launch of our Proline 300/500 family of flowmeters. Reliable flow measurement technology for the future is here now. Our safety-related experience over the decades has come full circle in developing a flow meter family according to SIL (IEC 61508). With unique features such as webserver, WLAN, WirelessHART, Industrial Ethernet, diagnostic and verification functions via our Heartbeat Technology™, Proline flowmeters maximize your plant safety and availability.

As the year unfolds, please remember that there are many ways to engage with us. For those of you who are "social savvy," connect with Endress+Hauser Canada on LinkedIn, Twitter and Facebook. You can keep up-to-date with our work, customer events and various business developments over the course of the year.

Now that you are actively working towards the achievement of your goals and priorities for 2017, I trust you will look to us to help you be as efficient and competitive as possible.

Sincerely,

Anthony Varga President and CEO



Endress+Hauser Canada Partners with Gerrie Electric

To provide a single-source process control solution for process industries.

On February 28, 2017, Endress+Hauser, a global leader in process measurement and instrumentation, has concluded an agreement with Gerrie Electric that makes the independent electrical distributor its latest Authorized Channel Partner. The move, which leverages the strategic relationship between Rockwell Automation and Endress+Hauser Canada Ltd., is a major development in the process automation sector in Canada.

"The evolution to Industrie 4.0 and Industrial Internet of Things offers limitless opportunity for Canadian companies," said Anthony Varga, G.M. at Endress+Hauser. "Thanks to the strength of our partnership with Rockwell Automation and Gerrie Electric's expertise, we'll be able to go to greater lengths to help modernize the Canadian manufacturing sector."

Gerrie Electric can now provide its process automation customers with new cost saving opportunities through the enhanced integration of Endress+Hauser's measurement technology with the Rockwell Automation platform. The pre-tested and validated designs between Rockwell Automation and Endress+Hauser offerings help reduce the costs associated with bringing new measuring points or a new production line into the manufacturing facility.

Customers of Gerrie Electric will also have the opportunity to enjoy a single source provider, enabling them to acquire the PlantPAx[®] system, a modern Distributed Control System with best-in-class field instrumentation and measurement solutions – trusted globally.

"Enabling big data analysis and the expansion of the 'Connected Enterprise' is a boon for the Canadian manufacturing sector and is helping our customers compete on a global scale," said Heather Gerrie, copresident & CEO at Gerrie Electric. "This partnership strengthens our ability to remain at the forefront in providing the required products, solutions and services on which Canadian manufactures depend." Manufacturers face many challenges when integrating advanced instrumentation into a plant-wide process control system.

Rockwell Automation and Endress+Hauser are committed to helping meet the needs of customers for complete process automation solutions. Drawing from the core competencies of both companies, they are able to deliver pre-engineered, pre-tested, supported and maintained integrated instrumentation, control and information solutions.

Their partnering efforts focus around tools for integration, plant-wide advanced diagnostics, and overall helping customers manage their process system lifecycles.



About Gerrie Electric

Gerrie Electric is a leading electrical, automation, lighting and IP Network product and solution provider with 24 locations and over 350 employees in Ontario. As one of the largest independently and family owned distributors in Canada, they are a certified WBE and proud to be recognized as one of "Canada's Best Managed Companies."

The Gerrie Automation and Process Groups specializes in total process control solutions based on proven technology in order to deliver complete automated control systems. Services include design, in-house system staging, system set up, and post-sales support to help customers mitigate their risk while ensuring a smooth transition to modern solutions. Additional information can be found at **www.gerrie.com**.



Heartbeat Technology[™] The pulse of your flow measurement

By: Victor Outrebon, Flow + Pressure + Temperature Product Manager, Endress+Hauser Canada Ltd

The process industry is being confronted with increasing demands in the areas of quality and safety. At the same time, pressure is increasing to lower costs by utilizing resources more efficiently or by preventing unnecessary maintenance and avoiding unplanned production shut downs.

With Heartbeat Technology™ available across all Proline flowmeters, Endress+Hauser offers permanent diagnostics and on-board verification that increase measurement reliability and plant availability.

Comprehensive diagnostics

In order to quickly detect a defect or an application problem, Heartbeat Technology™ continuously monitors the device condition and provides diagnostic information to support quick troubleshooting. The operator is now immediately warned if the device has reached a critical condition and gets corrective actions suggested in a uniform manner for the entire installed base.

On-board verification

To ensure a device is working within specifications, Heartbeat verifications can be done on demand and via all operating interfaces (from the local display or via its built-in web server) as well as from the system integration interfaces (HART, Profibus, Foundation



Fieldbus). These on-board verifications are based on factory traceable and redundant references and are attested by a third party (TÜV).

Heartbeat Technology™ produces a comprehensive report with results of all checked parts and makes it available for electronic reporting in PDF format. It can be implemented as quality documentation thanks to its compliance with international standards (ISO 9001 and IEC 61508).

Predictive maintenance

The continuous observation of the device and process status allows proactive measures through early identification of trends, thereby preventing unplanned maintenance or plant shutdown. By observing trends over time, corrective measures can be made early, before an actual device defect occurs.

A frequent monitoring of the verification parameters allows an easy identification of changes to the device and also improves trust in the measurement. For industries where quality control is key, Heartbeat verifications reduce off-spec batches and prevent product losses by extending calibration intervals as well as preventing downtime.

Proline 300 / 500

Proline flowmeters have proven their robustness and reliability in countless challenging applications. The new generation of Proline flowmeters now exceeds all industry relevant regulations with regard to process safety (SIL), approvals, custody transfer, and product quality. Proline makes it easier to fully access device and configuration data using all interfaces, and therefore increases system availability.

Visit our website www.endressdirect.us/proline-flowmeters



Watch our 3-minute video www.bit.ly/proline-300



Who is Kaiser Optical?

By: Karen Esmonde-White, Kaiser Optical Systems Inc.

Introduction

As a recent addition to the Endress+Hauser Group, Kaiser Optical Systems Inc. is pleased to introduce ourselves to *Talkline* readers. Kaiser was founded in 1979 based on holographic technology developed at University of Michigan. We have grown to nearly 100 employees in Ann Arbor, Michigan and European offices. Kaiser was acquired in November 2013 by the Endress+Hauser Group and operates as an independent division focused on advanced optical instrumentation based on Raman spectroscopy. Over the years, Kaiser has developed representation and distributor networks for its Raman products and the industries it serves. The Endress+Hauser Group further enhances Kaiser's ability to serve its customers globally for the next years and decades to come.

For the past 20 years, Kaiser has been a trusted partner in applications from petrochemical processing to laboratory quality control analysis. Kaiser designs and manufactures Raman spectroscopy equipment for laboratory, analytical and process environments. Our innovative products revolutionized a chemical analysis technology, called Raman spectroscopy, and enabled it for use outside of an academic laboratory. Raman spectroscopy enables chemical analysis of a material without needing to extract, prepare or destroy it. Our laboratory equipment is used throughout academic laboratories to explore new frontiers in nanomaterials, life sciences, clinical medicine and environmental health. As a process analytical technology, Kaiser Raman has proven benefits in improving process efficiency so that high-quality product can be made consistently and safely. Kaiser Raman is used throughout the chemical, petrochemical, polymer, pharmaceutical, biotechnology and biomedical fields. Some examples of the uses of Kaiser Raman include: real-time testing to ensure safe and efficacious medicines, in-situ control of bioprocesses that produce the newest therapies, and manufacturing plant analyzers to measure the energy in natural gas.

Kaiser Optical Systems is the acknowledged leaders in process Raman spectroscopy. Our solutions-based approach includes process-optimized analyzers, sampling probes and expert application support. Kaiser Raman is used as a real-time, in-line chemical analyzer in many applications, providing improved process knowledge and the capability to be integrated into a process control strategy. One of the first process applications of Kaiser Raman was for in-line reaction monitoring. In this article we highlight Kaiser Raman as a measurement and control analyzer in reaction monitoring.

What does Raman measure?

Raman spectroscopy provides an identification and quantitative measurement. Raman spectroscopy is useful for chemical analysis for several reasons: it exhibits high specificity, it is compatible with aqueous systems, no special preparation of the sample is needed, and the

timescale of the measurement is short. Raman signal has a good signal-to-noise ratio with non-overlapping features. This allows a Raman spectrum to be used for everything from fingerprint identification of samples to constructing quantitative chemical models of reaction processes.

Benefits of Kaiser Raman in process

Spectroscopic analyzers are capable of making precise measurements of process chemistries with robust hardware which have lower maintenance demands because of the small number or even absence of moving parts. Spectroscopy has fast analysis times, which can enhance closed loop control situations by providing faster control response capabilities to upsets. Spectroscopy techniques are easier to multiplex and, when combined with speed of response, these analyzers offer considerable utility for the investment dollar over other analytical techniques. These are just a few of the advantages of spectroscopic technologies.

Raman spectroscopy does not rely on a specific path for the analytical light, giving it a tremendous advantage over other optical techniques in difficult sampling situations. Raman retains all the advantages of multiplexing and goes a step further in that the absence of a defined path length removes analytical constraints common to near-infrared or infrared techniques. Thus, more components can be measured at a single probe point. The excellent peak separation enables rapid method development and transferability across instruments and operating scales. Incorporating in-line Kaiser Raman analyzers has helped customers improve their process uptime, realize cost and time savings, and reduce the safety risk associated with manual sampling.

Kaiser Raman demonstrates excellent scalability and model transferability, and capable of in-line measurements in microreactor, laboratory, scale-up, and pilot-plant to production settings. Our systems are deployed in GLP,

GMP, and classified environments. These next examples illustrate the use of Raman spectroscopy in continuous reaction monitoring and reaction endpoint determination.

Applications in reaction monitoring

An important consideration in successful continuous manufacturing is integrating analytical tools into the reaction flow. In batch process monitoring, on-line and at-line analyses enable Quality by Design (QbD) and ensure efficient operations. There is a clear need for rugged and validated analytical tools which will meet the specific needs for continuous reaction monitoring. Kaiser's process Raman solutions feature a fiber-optic technology platform that can be immersed directly into a chemical stream or reactor, providing sampling versatility and remote monitoring. Figure 1 presents the variety of installation locations where Kaiser has demonstrated success. Intense reaction conditions, non-traditional chemistries and miniaturized reactors of continuous reactions are challenging environments for analytical tools originally developed for batch reaction monitoring. Kaiser is a proven leader in monitoring reactions under intense conditions that are used in continuous manufacturing within the chemical and petrochemical industries. In one application, Raman spectroscopy was used to measure the continuous reaction between phosphorus and chlorine to produce phosphorus trichloride. Figure 2 shows the reactor for PCl₂ production and where Raman collected the measurements.

Owing to the corrosive intermediates and reaction products, an in-line reaction analysis tool was needed to replace off-line measurements. Raman spectroscopy was chosen because it was able to directly measure all components of interest throughout the reaction, was sensitive to better than 1% for reactants and products and provided fast feedback. Within the pharmaceutical industry, customer applications have demonstrated the practicality of Raman measurements in an esterification reaction and flow synthesis of an oligonucleotide.^{1,2}



Figure 1



In these examples, many benefits were cited including reduced cost of goods and production losses, remote monitoring in hazardous reaction conditions, ability to control the reaction based on real-time chemical analytics, and improved process robustness.

A multi-part customer webinar shows practical examples of integrating Raman spectroscopy into a process environment, including demonstration of coupling in-line Raman spectroscopy with a QbD approach to improve a process reaction.³ Raman spectroscopy was proposed as an in-line chemical analysis tool to control post-reaction age because the reaction conditions required inline monitoring. The Raman method resulted in an increased understanding of the reaction and resulted in a more robust process.

Conclusions

Kaiser Optical Systems, Inc. is a world leader in Raman spectroscopy instrumentation optimized for research, analytical and process environments. We value providing the best products, service and support. Our holistic approach helps customers improve product quality, save resources and successfully meet new scientific, logistical or regulatory challenges. We provide optimized Raman solutions which incorporate sampling optics, GLP/GMP certified hardware and software specific to the needs of research, analytical and process customers. Our solutions, featuring RamanRxn[™] analyzers, have set the standard for quantitative and validated analyses in laboratory and manufacturing environments.

References

- 1 Hart RJ, Pedge NI, Steven AR, Sutcliffe K (2015) *In situ Monitoring of a Heterogeneous Etherification Reaction Using Quantitative Raman Spectroscopy*. Org Process Res Dev 19:196–202. doi: 10.1021/op500027w
- 2 Rydzak JW, White DE, Airiau CY, Sterbenz JT, York BD, Clancy DJ, Dai Q (2015) *Real-Time Process Analytical Technology Assurance for Flow Synthesis of Oligonucleotides*. Org Process Res Dev 19:203–214. doi: 10.1021/op500035j
- 3 Wasylyk J, Wethman R From Development to Plant Implementation of Raman Methods: Strategy, Challenges, and Solutions. http://bit.ly/10dRjlh

Endress+Hauser Installs High Pressure Test Rig in Greenwood, Indiana

The rig can test complete instrument assemblies at pressures up to 15,000 psi to meet customer, insurance and safety requirements.



Endress+Hauser invested nearly \$1 million in a stateof-the-art pressure test rig at their U.S. headquarters in Greenwood, Indiana. The rig allows them to test complete instrument assemblies to customer specifications, and it provides a 100% test indicating a specific instrument can withstand the design process pressure, up to 15,000 psi.

Previously, Endress+Hauser — like most other U.S.-based instrument manufacturers — did not have local high pressure testing capability. For example, Endress+Hauser performed such tests at its production plant in Maulburg, Germany. With the new high pressure test rig located in the Greenwood, IN production center, instruments can be tested and certified quickly, for faster delivery to customers in the US and the Americas. And because the test facility is in the U.S., it makes it easier for customers to schedule and witness the test.

Being able to certify the entire instrument assembly—not just the process connection—is important for customers in the oil and gas, chemical, power, energy and other heavy industries. In many cases, engineering firms, end users and insurance companies have detailed and specific internal codes and specifications for instruments that will be installed in critical, high-pressure applications, such as high pressure boilers, reactors or catalytic crackers.

The test rig, located in an underground concrete pit for safety reasons, can generate pressure up to 15,000 psi (1000 bar) to test devices up to 16 feet (4 metres) long and with up to a 2-inch diameter. Each test is automated to execute customer-specific test and ramp up times. The test rig is specially designed to test Endress+Hauser's Levelflex guided wave radar level instruments, capacitance probes, Liquiphant tuning forks, Micropilot free space radar level instruments, and high pressure thermowell assemblies all products built in the Greenwood, Indiana, plant — but it can also test other instruments.

The test rig can produce relevant certification and documentation to ensure there is a level of safety built into the system and reduce risk of failure. This certification and documentation is also often required by engineering firms, end users or insurance companies.



For more information on our high pressure offerings visit www.us.endress.com.

Radar steps into new dimensions

Micropilot FMR10/FMR20 – innovative with *Bluetooth*® communication.



- output signal
- Gas Ex approvals
- Measuring range: 10 m or 20 m
- Accuracy: ± 2 mm
- Process/ambient temperature: -40 to +80°C
- Ingress protection: IP66/68, NEMA4x/6P
- Cable length: up to 300 m



The new Micropilot FMR10 and FMR20 Endress+Hauser offer perfect application fit devices for level measurement in the water & wastewater industry and utilities in all industries. Time saving and innovative commissioning, operation and maintenance via app using *Bluetooth* wireless technology convince as well as a perfect priceperformance-ratio due to unique radar chip design.

Micropilot FMR10 and FMR20 belong to the first non-contact radars with *Bluetooth* commissioning, operation and maintenance app. Signal curves can be shown via app on every *Bluetooth* enabled smartphone or tablet (iOS, Android). This increases plant availability due to fast access to maintenance information, and guarantees cost savings because of the usage of existing non-proprietary tool infrastructure.

Furthermore FMR10 and FMR20 are the most compact radars in their class thanks to unique radar chip design with integrated radio frequency components and direct emission transceiver — invented by Endress+Hauser. With the compact design the devices fit also in limited space applications, which mean an extended application scope for the radar technology.

The full PVDF body of the device resists outdoor conditions and guarantees a long sensor lifetime. Sealed wiring and fully potted electronics eliminate water ingress and allow operation under harsh environmental conditions, which means enhanced availability. Also in hazardous areas or places difficult to reach, safe and secure wireless remote access via *Bluetooth* offers a lot of advantages. There is no additional tool and adapter or wiring effort required. It is as simple as this: connect – set – ready!

The communication is absolute secure due to encrypted data transmission and password protected communication so that unauthorized access or manipulation is not possible.



Water and Wastewater

By: Dean Rudd, Analytics Product Manager, Water and Wastewater Industry Manager, Endress+Hauser Canada Ltd

As a focus industry for Endress+Hauser Canada we have worked with our global industry team to create a simple message for all our customers for 2017. Legal demands, shrinking budgets and increasing process complexity – the challenges faced by the water and wastewater industry have never been higher. To master these challenges you need a partner who combines profound industry knowledge and experience with an entire portfolio of measuring instruments, solutions and services As you interact with your local Endress+Hauser representative they work with you to understand how we can help improve your understanding of our complete portfolio offering. We have boiled this down to three simple focused messages.

Overall, we have a global commitment to the industry under to heading of Water Is Our Life.

<section-header><section-header>Protect our water
By the gislative compliance and water safety by relying on precise instrumentation and quality inagement solutions. **DALE DESTINATION OF CONSTITUTION OF**

Protect our water Ensure legislative compliance and water safety by relying on precise instrumentation and quality management solutions.

Due to extensive environmental protection laws, the quality of drinking water and the safe discharge of treated wastewater have become increasingly critical. The strict legal demands have resulted in more complex treatment processes. This leads to higher requirements for plant automation and an increase in the number of measuring parameters.

As we offer the largest array of different measuring principles, our experienced employees are able to advise you on the right instrument. These instruments optimize and control your critical applications and processes regarding legislative compliance. Plant operators can trust our tailor-made solutions, where we can work with you to identify critical control points and ensure proper measurements and operations.

Make planning a breeze With our entire portfolio of instrumentation and our certified project management skills you can streamline engineering and design processes.

Process instrumentation may be a small part of your water or waste water plant, but it is essential for monitoring, controlling and optimizing treatment processes. It requires a great deal of time and resources to select appropriate devices within budget during project planning phases. This does not mean instrumentation selection has to be complicated. Rely on our project management expertise, software planning tools and intelligent product portfolio to significantly reduce complexity, stay within budget and deadlines.

Pump up your efficiency Improve your plant performance and reduce operational expenditure (OPEX) up to 30% through better maintenance routines and optimized basic processes.

There are several ways to easily reduce OPEX in a water or wastewater plant. The most common are controlling and monitoring basic processes in order to reduce chemicals and energy consumption, or improving the type and frequency of maintenance procedures.

Regarding maintenance optimization, rely on our service technicians who operate nationally. Their outstanding application knowledge guarantees they provide expert recommendations on maintenance priorities. Extensive internal diagnostics provided by our revolutionary Heartbeat Technology™ and W@M, our lifecycle management software, can further enhance your goal of maintenance optimization.

We look forward to working with our customers 2017, following these three core ideas, to further trust and cooperation. For more details, please contact your local Endress+Hauser representative and start the discussion.



Join our free process automation webinars Ask questions, get answers!

Join us for our free webinars covering a range of process automation topics. It's your chance to find out more and chat directly with our experts!

www.ca.endress.com/en/events/overviewseminar-roadshow/webinars-2017

Benefits

- Live and interactive our experts are on hand to answer your questions.
- Our free webinars can be easily accessed at your convenience.
- With a wide range of topics, you're sure to find a subject to suit!



April, 19, 2017

Promass Q Coriolis flowmeter: the highest accuracy for challenging applications.

It provides the highest measurement accuracy for mass flow, volume flow and density. It has also been optimized for liquid applications where entrained gas is present. The compact transmitter offers high flexibility in terms of operation and system integration with a remote display and improved connectivity options. The integrated Heartbeat Technology ensures compliance and process safety.



May 4, 2017

The benefits of replacing older technology with new.

Traditional mechanical flow and level transmitters have been superseded by modern transmitters with no moving parts for the majority of applications. If you're thinking about upgrading your plant, we'll show you how we can save you time and money!

June 13, 2017

Take radar measurement to the next level!

For reliable radar level measurement, it's essential to choose the right frequency for your particular application — our webinar will help you choose the right one for your task. We'll also discuss how to save time and money by harnessing the power of Heartbeat Technology to achieve documented proof testing and on-demand measurement verification.



June 14, 2017

Increase efficiency and improve product quality.

Inline quality monitoring reduces the risk of product loss with faster response to process changes and increases plant availability with less hold time waiting for lab analysis. It also ensures a secure audit trail by automatic collection of quality parameters. Register now and discover how we can help you to improve plant control.





Quality products can be purchased easily online

Sensors, switches, components, displays and recorders

What is E-Direct? E-direct complements the traditional range of products from Endress+Hauser. Certain instruments do not require a vast amount of consultation in terms of application and price – that's where E-direct can help. It's a product portfolio that offers simple product selection and fast delivery at an affordable price. What's better? Your confirmed order ships within 48 hours of receipt!





Shop now! Go to bit.ly/shop-e-direct



Update your *Talkline* subscription: info@ca.endress.com Issue 79

Contact

Endress+Hauser Canada Ltd 1075 Sutton Drive Burlington, ON L7L 5Z8

Tel: 905 681 9292 1 800 668 3199 Fax:905 681 9444

Endress+Hauser Canada Ltée 6800 Côte de Liesse Suite 100 St-Laurent, QC H4T 2A7

Tél: 514 733 0254 Téléc.: 514 733 2924

Endress+Hauser **Canada Ltd** Suite 110, 703 64 Avenue SE Calgary, AB T2H 2C3

Tel: 403 777 2252 1 888 918 5049 Fax: 403 777 2253

Endress+Hauser Canada Ltd 9045 22 Avenue SW

Edmonton, AB T6X 0J9 Tel: 780 486 3222 1 888 918 5049 Fax: 780 486 3466



People for Process Automation