

INDUSTRY PROFILE: **DANIEL MATTER**



In this, International Power Engineer's first industry profile, we ask the CEO of technology company Mems AG about his history in the industry, what drew him to creating gas sensor technology and how the company has evolved



Gas QS static transparent

WHAT IS YOUR ROLE WITH MEMS AND HOW LONG HAVE YOU BEEN WITH THE COMPANY?

I founded company Mems AG in 2003 as a spin-off from ABB corporate research Switzerland – where I worked as a project manager for more than 10 years with large teams developing sensors for various applications in the fields of pulp & paper, oil production and metering. With initially seven employees, we spent the first 10 years developing and certifying a static gas meter for household applications. This type of meter is now used in more than 10 million homes worldwide.

In 2008 we started to develop gas quality meters. These have multiple certifications are approved for billing applications, and are used worldwide.

I currently manage the company together with Marco Siragna and my successor Markus Nägele – a collaboration that is wonderful and gives us a lot of pleasure. At the end of the year and with myself already well into retirement age, my colleagues will take over the management of the company.

PLEASE TELL US WHAT INSPIRED YOU TO GETTING INVOLVED IN THE POWER INDUSTRY?

Right now, approximately 80% of the world's energy needs are still being catered to by fossil fuels such as coal, oil and natural gas. With our gas quality measuring devices, we help to optimise gas-powered processes and machines to maximise efficiency, durability, exhaust gas reduction and safety.

WHAT IS YOUR EDUCATION AND TRAINING BACKGROUND AND HOW DOES IT FIT WITH YOUR WORK AT MEMS?

I started with an apprenticeship as an electrician. I then completed a degree in electrical engineering at a university of applied sciences and then studied physics at a technical university (ETHZ) in Switzerland. I then completed a dissertation in aerosol science and trained as a secondary school teacher.



Gas QS Flonic

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HOW DO YOU KEEP YOUR SKILLS UP TO DATE AND HOW HAVE THE DEMANDS OF YOUR CLIENTS CHANGED OVER TIME?

We work with the whole team on innovative projects in hydrogen, biogas, LNG, methanation and ammonia – this means we are always up to date on the latest technology.

WHAT HAVE BEEN THE MAIN CHANGES IN THE POWER INDUSTRY IN THE 35 YEARS YOU HAVE BEEN WORKING IN IT?

Efficiency and emissions reduction have become very important for companies with a strong ethical focus. What I have noticed, however, is that

► many companies and organisations philosophise about solutions but only a few actually push ahead with implementation.

WHAT CHANGES DO YOU PREDICT FOR THE NEXT FIVE OR TEN YEARS IN THE INDUSTRY?

Further conversion to renewable energy sources and more efficient processes. Increased efficiency and the smart use of resources can save the most energy – but fossil fuels will continue to play a decisive role for many years to come.

WHICH IS THE PROJECT YOU HAVE BEEN MOST PROUD OF WORKING ON AND WHY?

I am most proud of the fact that we, a team of around 20 people, have developed a complex, patent-

protected series of products with our own financial resources and that these are in use throughout the globe.

WHAT ARE THE BIGGEST CHALLENGES CURRENTLY FACED BY THE INDUSTRY AS A WHOLE?

In the discussion about the important topic of CO₂ reduction, the biggest challenges will be in sector coupling and energy storage, i.e. the time lag between energy over- and undercapacities. Depending on the existing infrastructure and geographical conditions, these issues represent a huge challenge for many countries around the world both technically and financially. ●

For more information visit:
www.mems.ch/en

NEW INDUSTRY

HERE DANIEL PROVIDES INSIGHT INTO THE WORK MEMS HAS BEEN DOING IN BIOGAS AND HYDROGEN

We are mainly represented in Europe and have about a dozen customers with the gasQS static in their biogas plants. Compared with all other measuring devices known to us, we measure the CH₄/CO₂ ratio in these plants with very long-term stability – meaning they work for many years without any service or calibration work.

The hydrogen sector is divided into several areas. For example, the gasQS flonic is used to measure the calorific value, density and compressibility and the hydrogen content in natural gas distribution networks. The gasQS flonic is OIML R140, class B certified and can therefore be used worldwide for energy billing. Two out of five gas network operators in Switzerland have started to convert their existing measuring technology to our measuring devices. The gasQS static can be used for hydrogen admixture in natural gas networks and for determining the purity of hydrogen up to class 3.0 – a three-digit number of such measuring devices are successfully in use. There are gas engine and gas turbine manufacturers who use the gasQS static to measure the hydrogen content in natural gas or the methane content of LNG boil-off and thus regulate the ignition angle of the machines. i.e. optimise the efficiency of the machines.

How has the work with hydrogen measurement changed and how is it likely to change in future?

The topic of hydrogen has become much more important in the last three years or so. While we initially supplied our gasQS technology for field test projects and pilot plants, our measuring devices are now in use in several functionally optimised plants and applications. In the near future, we expect that other companies and individuals involved in the topic will move from talking about it and presenting films to implementing it – actions instead of words!

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The Gas QS Flonic V2 and the Gas QS static transparent

