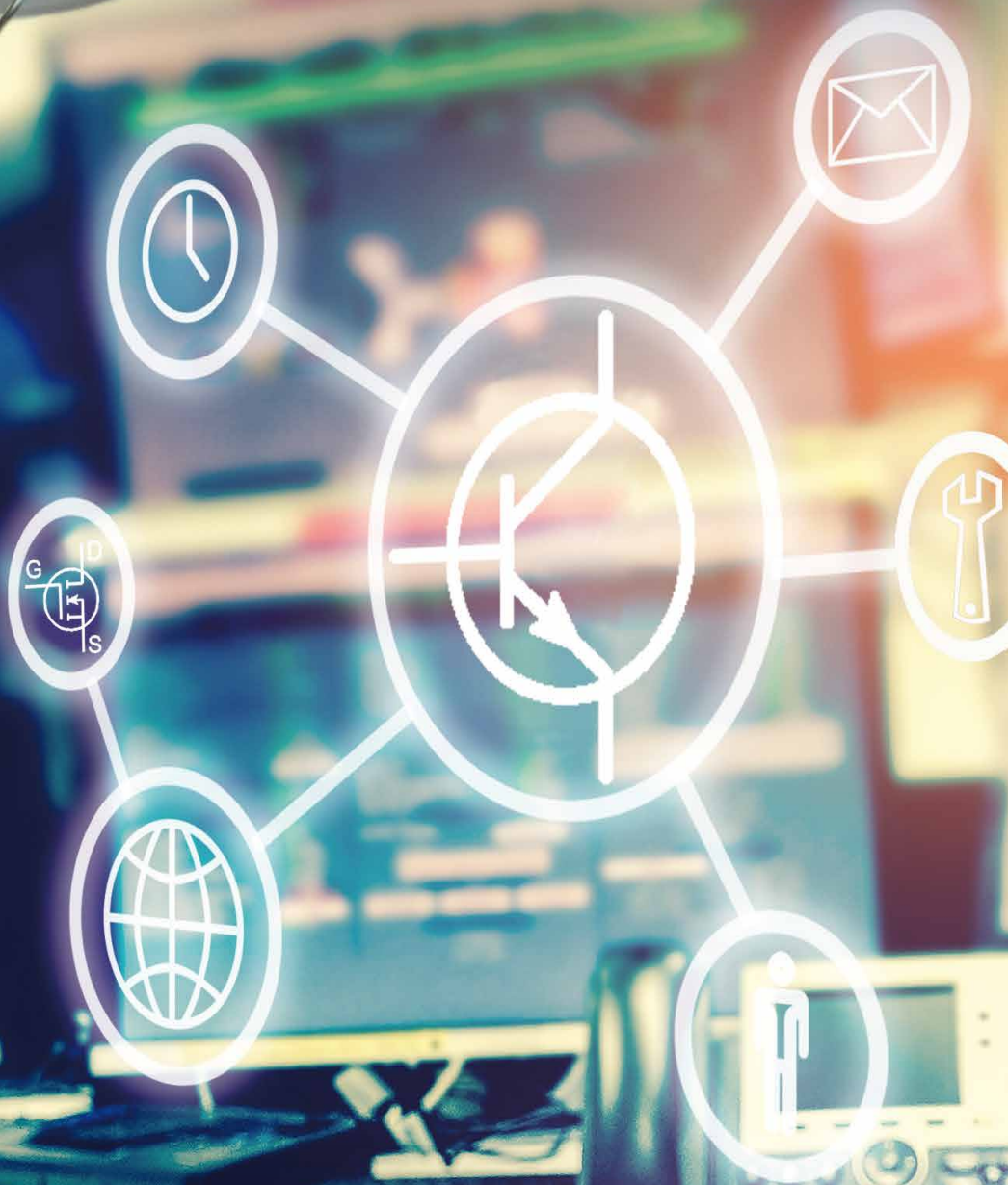


PROFILES CUSTOMER GAS MAGAZINE

2/2019



Automation Technology:
Optimally Plan Gas Consumption

The Race Is On – but Are You Prepared to Win?

Volume Conversion Device ZM1 in Practical Use

Honeywell

ARE YOU FOCUSED ON AUTOMATION SOLUTIONS?



Michael Halm
Sales Specialist
Automation

Honeywell is active in the energy industry and as such, in addition to regulating and measuring devices, also supplies automation solutions for our customers. These require individual co-ordination, planning, and design.

Honeywell Gas Technologies GmbH has established an efficient team at its site in Kassel which engineers and designs automation systems comprising the whole process from quotation to commissioning.

This team of experts has many years of experience and can supply your individual turnkey solutions in the form of a complete package from planning and delivery to installation work and commissioning. The team will also take responsibility for the coordination and engagement of subcontractors such as heating experts and electrical installers.

Honeywell plans and builds its own control cabinets, which enables us to supply automation solutions in the form of complete systems. The GSA team takes care of the engineering, planning, and documentation of the system control cabinets.

The GSA team has set up a remote maintenance workstation which complies with the latest data protection regulations and enables Honeywell to provide its customers and gas suppliers help quickly in the event of a fault. The project support team can access any automation device from Kassel as long as the customers have provided data access. Remote maintenance also enables Honeywell service technicians to diagnose and rectify errors quickly from a remote location.

Furthermore, you can conclude service contracts to keep your system up to date. This service is also available in the form of a 24/7 remote maintenance on-call contract.

Regardless of whether you wish to expand or completely redesign the automation equipment in your gas pressure reducing and metering station, we will be delighted to provide you with advice and hands-on assistance.

You can read more about automation equipment in the article starting on page 3.

Place your focus on us!

Michael Halm

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OPTIMALLY PLAN GAS CONSUMPTION

Automation technology has for many years played a big role in gas pressure reducing and metering stations (PRMS). Many gas suppliers rely on automated solutions in order to guarantee the safe and efficient operation of the supply grid.

Information from the PRMS, which are distributed throughout the grid, flows together into the control rooms of our customers via remote-control substations. The degree of detail of the information transmitted between the control rooms and the PRMS is constantly growing.

With that, the gas supply companies are in the position to optimally coordinate gas consumption and to optimally plan possible deployments for resetting.

Alongside universal control and regulating functions, our automation systems offer many options for data coupling with remote-control stations, and can also be used themselves as a

remote-control substation. There is a wide range of possible applications:

REGULATOR AUTOMATION WITH OUR AUTOMATION SYSTEMS

With the automation device, the user has a variety of options to adjust the pressure setpoint and/or the flow rate setpoint of the gas pressure control system, either remotely controlled or with the aid of the local control panel, without the setpoint of the regulator having to be mechanically adjusted in the gas flow. In doing so, the operating limits P_{min} and P_{max} are permanently monitored and limited in both modes.

In addition to that, the automation device controls the fiscal limits

($Q_{m_{min}}/Q_{m_{max}}$) of the gas meter and intervenes immediately when the operating limits are surpassed (meter protection function). If Q_m falls below the operating limit, a so-called interruption operation can be programmed, which would prevent the meter from being operated below $Q_{m_{min}}$.

Furthermore, a consumption optimization can be programmed, which monitors and coordinates adherence to a set hourly, daily, or monthly consumption, overriding the above functions.

The following tried-and-tested pilots and regulators are available for equipping the control streams in your gas pressure control systems:



HON402 regulator with **HON630** and gear motor for automated gas pressure control



HON638 or **HON658** with electro-pneumatic loading pressure stage for automated gas pressure and volume control



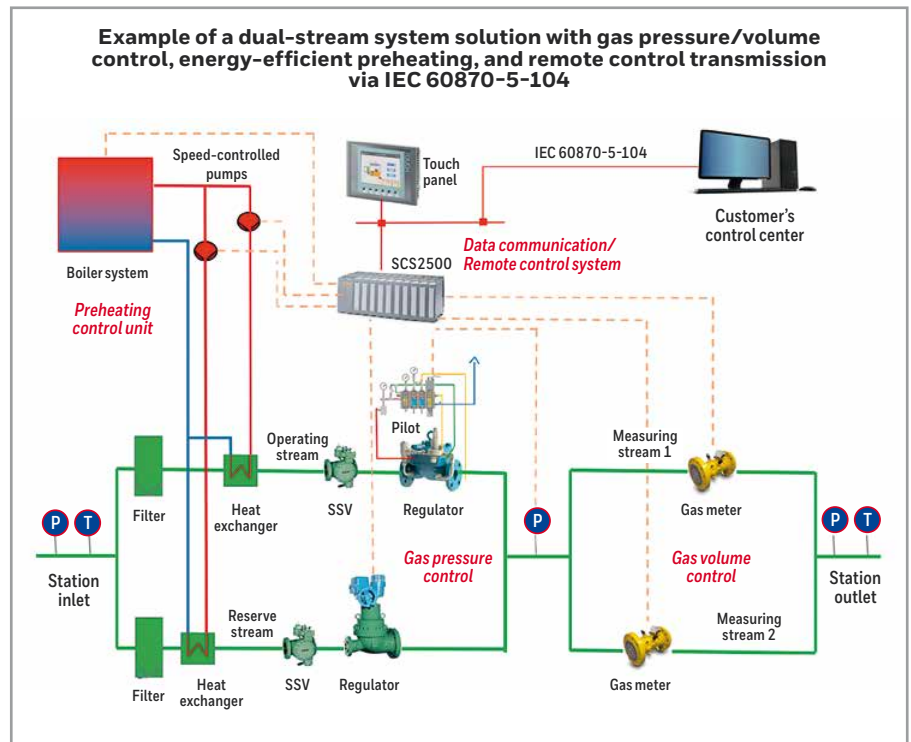
HON530 with electric actuator for automated flow rate control. The actuator is also available with 24 V DC supply voltage.

By the way: Regulators from other manufacturers could also possibly be fitted with our pilots. Just ask us about them.

ENERGY-EFFICIENT PREHEATING SYSTEMS

In order to counteract inadmissibly high cooling of the gas by pressure reduction, so-called preheating systems are used, which work against the Joule-Thomson effect. Previously, numerous preheating systems with thermohydraulic mixers were installed in the heating circuit flow. The setpoint of these regulators was mainly set at a fixed dew point temperature above the dew point of the ambient air in summer (approx. 15°C) in order to prevent condensation of the pipelines and therefore corrosion. Circulation pumps without speed control were also used.

By using our automation systems, the preheating system can be controlled by dew point or gas inlet temperature, and therefore operated extremely



cost-effectively. Both the gas consumption of the heating systems and the energy consumption of the electric circulation pumps are significantly lowered. Savings in energy costs of more than 50% (!) are possible.

Regulator automation (gas pressure and flow control) and energy-efficient preheating control units can be achieved without any problem with our trusted standard automation modules SCS2010 and SCS2500.



Preheating system with four condensing boilers and speed-controlled circulation pumps



OUR AUTOMATION SYSTEMS

There are different automation devices available to achieve the desired automation solution for our customers. For that, we use automation systems from SIEMENS, programmable logic controllers like the model SIMATIC S7, fitted with our standard station automation systems SCS2010 and SCS2500. Our standard automation solutions can be used with the SIEMENS systems ET200S and SIMATIC S7-300, as well as S7-400 and S7-1500.

The abbreviation SCS stands for Station Control System.

Established software and hardware components are offered with the station automation system. With regards to the process modules, the system is individually adapted to customer requirements and can be expanded.

The **SCS2010** is primarily used for regulating and control functions of system sections. Alongside its high level of reliability, the tried-and-tested system is characterized by easy scalability and operation. For remote data transfer or data coupling with higher-level systems, the process signals are processed and made available via digital interfaces.

The visualization system, which is designed as a state-of-the-art touch screen panel, provides the system operator on site with a quick overview

of the status of the system section and facilitates quick and safe intervention.

The **SCS2010** is the successor to the Protronic-500 control, which in the meantime has been discontinued.

Overview of the Performance Features of the SCS2010:

- Execution of regulating and control functions
- Intuitive operation and surveillance of process parameters via panel
- Clear presentation of system status in the reporting system
- Trend and characteristic curve visualization of process data
- Password-protected operation
- Web-based remote access
- Remote-control connection to higher-level controllers/systems using the telecontrol protocols IEC 60870-5-101 (serial) or IEC 60870-5-104 (IP-based), among others
- Standard protocol connection to existing control technology or remote control systems, for example, via 3964R, RK512, Modbus

The **SCS2500** is primarily used for regulating and control functions of complex and higher-level processes. As with the SCS2010, the tried-and-tested system is characterized by its high level of reliability and by its easy scalability and operation. For remote data transfer or data coupling with higher-level systems, the process sig-

nals are processed and made available via digital interfaces.

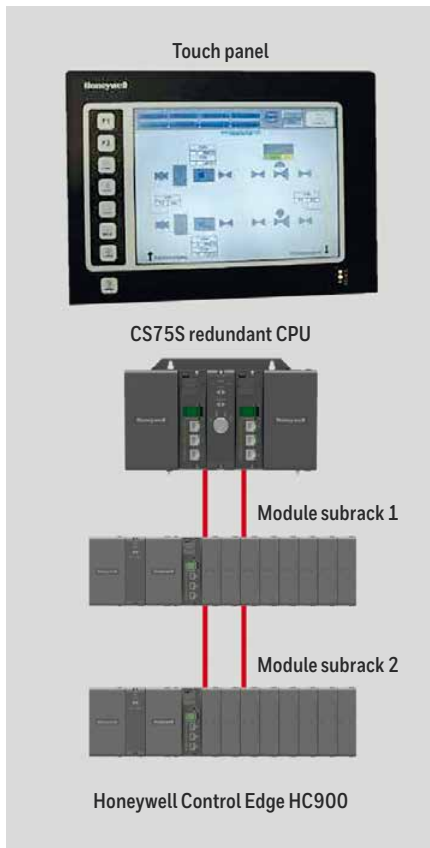
The visualization system, which is designed as a state-of-the-art touch screen panel, provides the system operator on site with a quick overview of the status of the system section and facilitates quick and safe intervention.

The display is available in two different design stages. Depending on the requirements, it can be designed as an HMI (operator panel) or SCADA (process control system).

Overview of the Performance Features of the SCS 2500:

- Execution of regulating and control functions
- Versions available in redundant and/or fail-safe design
- Process visualization via industrial computer or panel
- Reporting system and long-term archiving
- Trend and characteristic curve visualization of process data
- Data export in MS Office (*.csv files)
- Password-protected and freely-configurable user management with several authorization levels
- Web-based system monitoring/remote control
- Remote-control connection to higher-level controllers/systems using the telecontrol protocols IEC 60870-5-101 (serial) or IEC 60870-5-104 (IP-based), among others
- Standard protocol connection to existing control technology or remote control systems, for example, via 3964R, RK512, Modbus

By the way: Our station control systems SCS2010 and SCS2500 are now also available on the hardware platform S7-1500 with the programming tool TIA Portal.



Of course, we also use our own automation system, the well-established Honeywell HC900 controller. With its versatile process modules, it can reproduce all the functions of the SIEMENS SCS2010 and SCS2500 systems, as well as special applications.

A multi I/O module for the HC900 has been available since the middle of 2018, which facilitates cheaper planning of the hardware in the HC900.

We also supply redundant CPUs, as well as touch panels for the implementation of control systems with high availability.

The HC900 particularly shows its merits with larger, more complex automation solutions, which can be implemented cost-effectively.

SPECIAL APPLICATIONS

Alongside the standard applications, special automation solutions can also be implemented with our systems.

These are, for example, dual- or multiple-stream automatic meter switching devices for increasing the volumetric bandwidth of the gas pressure reducing and metering station.

A further special application are gas mixing systems, for which we can supply references that use our automation systems. It is particularly important in the glass industry to have available a stable heating value or Wobbe index of the natural gas. Due to the increasing fluctuations of natural gas composition (e.g., due to biogas or power-to-gas systems), Wobbe systems are again gaining in significance.

The conditioning gas nitrogen, which can be extracted from compressed air using nitrogen separators, is being increasingly used instead of air. We also provide complete solutions for this process. Please contact us if you are interested in such systems.



From left to right (back row): Torsten Pflüger, Sven Schäfer, Martin Hiederer, Andreas Hobein, Peter Hansel, (front row): Sebastian Kaune, Rene Biskupek, Jens Webel, Michael Halm, Uwe Koch



Exhibit of automation equipment at the 2019 Customer Day in Kassel

Should you wish to discuss your automation solutions with us, please get in touch with the sales staff responsible for you or directly with me. We would be pleased to arrange a visit to your facility in order to be able to assess your requirements on site and to prepare the customized automation solution for you.

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AN ECOSYSTEM FOR BUSINESS COLLABORATION AND OEM SUCCESS

Honeywell Process Solutions (HPS) reveals the process industry's most comprehensive program for process Original Equipment Manufacturers (OEMs). The HPS OEM Program provides the expertise, technology solutions, skills, and support to improve equipment availability and enhance the structured commercial engagement model, reducing OEMs' operating expenses and equipment delivery lead time.

The program helps create a differentiated solution which allows OEMs to focus on growing their business, develop winning proposals to acquire new customers, and generate new business opportunities.

ferentiated offering, the power of the Honeywell brand and Honeywell sales and marketing resources. It improves the equipment delivery schedule by using the OEM application-specific toolkit. It enables fast solution devel-

opment, design, and technical resolutions with Honeywell Technical Consultant support. Finally, it offers OEMs peace of mind, along with Honeywell's Global Service and Support organization to meet their support needs.

A COMMON VISION TO BUILD SUCCESS

The HPS OEM Program helps partner OEMs meet short- and long-term business objectives. It enables seamless business collaboration to reduce costs and complexity through a structured engagement model and business ecosystem. It also helps customers improve their business operations efficiency using a set of specific tools. The program offers access to Honeywell's state-of-the-art technology and portfolio and paves the way to a safe and risk-free conversion to Honeywell solutions using expert consulting, engineering, and project management.

Furthermore, the HPS OEM Program helps Honeywell's partner OEMs increase their win rate through a dif-



PROGRAM COMPONENTS

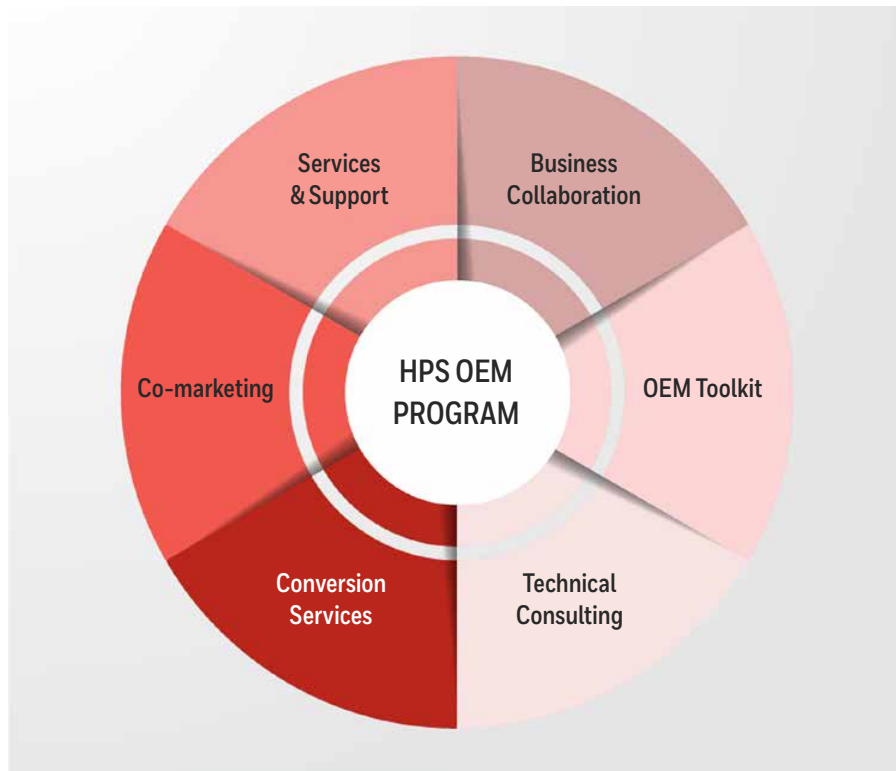
Honeywell partner OEMs have exclusive access to six program components, including:

1. Business collaboration: The program offers a structured engagement model to align business goals annually in order to create a winning market position. It does this through special discounts, incentives, exclusive preview of new products, and access to premium Honeywell events.

2. OEM toolkits: The standardized engineering toolkit includes drawings, documents, and applications designed for OEM needs. It also includes evaluation and demo hardware and software. This helps accelerate time-to-market and drive operating efficiency.

3. Technical consultation: This is available through Honeywell product and domain expert support on custom solution design, sales pursuits, and product trainings, as well as proof of concept for new solutions or products. This helps reduce risk and engineering costs for custom design and new product adoptions. Expert technical support helps OEMs develop timely and differentiated solutions for sales pursuits.

4. Conversion services: Honeywell expert engineers and project manage-



ment teams help OEMs develop equivalent or better solutions when they switch to Honeywell products or to a new technology. These services enable a risk-free switch for critical business designs in order to move to new technologies or solutions, ensuring OEMs' peace of mind through collaborative new solutions which have been tested for functionality and stability.

5. Co-marketing: This component offers the ability to use the Honeywell brand with OEMs' promotions or brand Honeywell products with the

OEM name. Honeywell co-invests in joint marketing activities and events. Honeywell products can be registered in key accounts in collaboration with OEMs. Co-marketing helps drive OEM business growth through correct branding, awareness building, and demand generation for differentiated OEM offerings using Honeywell solutions.

6. Services and support: Our OEM partners benefit from Honeywell's global presence, access to service contracts, extended warranties, global technical assistance centers, and outcome-based services. This component helps ensure high equipment availability and end customers' satisfaction thanks to Honeywell's expert service engineers and global service and support infrastructure.

Honeywell Process Solutions looks forward to providing its OEM customers with expert solutions and top-quality service.

Contact for further information:
Swapnil Adkar
Swapnil.Adkar@Honeywell.com



GAS MEASUREMENT AT THE DEW21 IN DORTMUND

The ZM1 volume conversion device made by Elster-Honeywell is extremely popular with our customers. Journal spoke to Mr. Oliver Fiene and Mr. Lothar Balczukat about the practical use of the ZM1 at the DEW21 in Dortmund. Mr. Fiene is a test center manager and Mr. Balczukat works at the GNW 82 test center.

Journal: Mr. Fiene, who or what is the DEW21?

Fiene: Dortmunder Energie- und Wasserversorgung GmbH (DEW21) is a subsidiary of Dortmunder Stadtwerke AG (DSW21), holding a share of 60.1%, and innogy SE, holding 39.9%. DEW21 supplies the people of the city of Dortmund with natural gas, electricity, heat, and water. It provides services for commercial and private customers for these products as well as supplying residents of the neighboring city of Herdecke with natural gas and water, and is an upstream supplier of drinking water for the cities of Holzwickede, Schwerte, and Iserlohn. DEW21 also markets its natural gas and electricity products outside Dortmund. The company is highly committed to climate protection, for example, through the expansion of energy production from renewable sources or through the setting up of a climate-friendly heating supply in the Dortmund city center.

The limited liability company Dortmunder Netz GmbH (DONETZ) is the local distribution grid operator and a wholly-owned subsidiary of DEW21. As DONETZ's parent company, DEW21 is the service provider for DONETZ in many functional areas.



Thus, DEW21 is responsible for the installation, operation, and maintenance of metering points, its measuring equipment, and, in the future, smart metering systems on behalf of DONETZ which has chief responsibility for operating metering points.

Journal: Mr. Fiene, which Elster-Honeywell products do you use?

Fiene: We have a very large number of Elster-Honeywell gas meters in use. They include residential diaphragm meters, rotary gas meters, and large diaphragm gas meters for commercial and industrial customers as well as turbine meters for volumetric measurements in large metering systems.

We also use around 300 DL210 and DL230 electronic data loggers. The large metering systems are typically also equipped with volume conversion devices. We have around 150 of them. In the course of our reinvestment program, we have gradually been replacing the gas-net series with enCore ZM1 devices since 2017.

Journal: Why do you use the ZM1 for your metering systems for RLM gas?

Balczukat: We have been using the gas-net device series for many years and have been very satisfied with them. So, it seemed logical to use the successor model ZM1 to replace them. We were convinced by the sophisticated



Mr. Fiene (left) is a test center manager and Mr. Balczukat (right) works at the GNW 82 test center.

technology, particularly the Ex-i barrier in the devices, abolishing a great deal of technical work in the control cabinet. Furthermore, the devices can be fitted with up to three IP interfaces allowing us to provide our partners with information where necessary.

The switch to the new enSuite PC support initially required a bit of readjustment. But once you have understood it, the parameterization is easy and the operation is straightforward and clear.

Journal: How did you react to the “All IP” announcement by Telekom and the corresponding information from Elster-Honeywell?

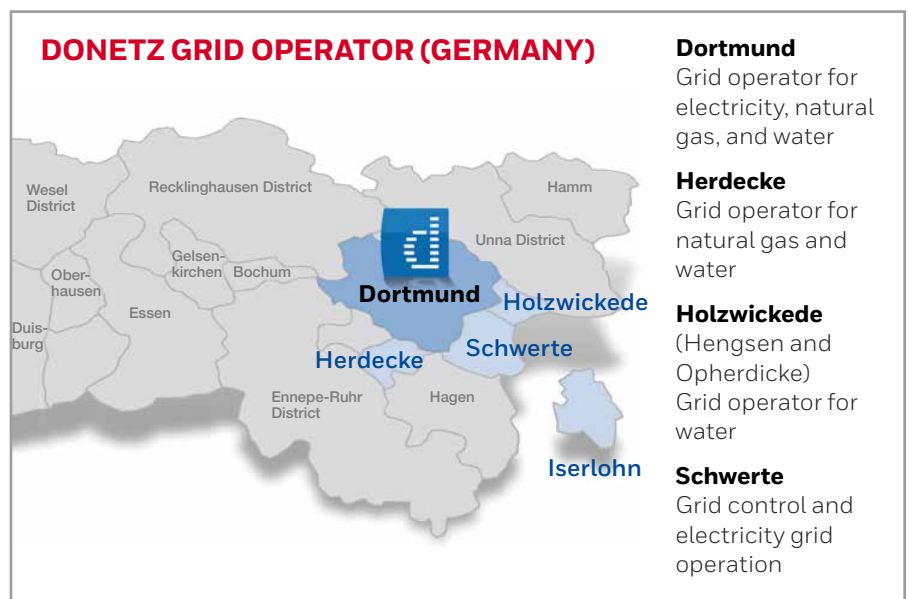
Balczukat: We found ourselves in the same situation as many other municipal utilities. The billing data were supplied using a telephone modem (CSD and GSM). As a result of the announcements by cellular network operators and the information from Elster-Honeywell, it quickly became clear to us that we would have to take urgent action to enable us to continue to transfer our billing data securely.

That is why we started the “Conversion of modem retrieval to IP” project. It also became clear fairly quickly that the technology of the future would be a cellular network. That was the solution which required the lowest amount of adjustment expense and its operation also proved to be very reliable. For security reasons, the technology uses private fixed IP addresses and a VPN (Virtual Private Network). We can even

continue to use the SIM cards which were previously used for GSM.

Journal: What has been your experience in establishing and operating your cellular network?

Balczukat: To be honest, initially, we were a little intimidated by the idea, particularly since there were repeated rumours in the industry about the complexity of such a network. What really helped us was the experience



of the Elster-Honeywell staff who had often been involved in such processes. As this meant that we knew from the very beginning what we wanted, working with our internal IT management and the IT service provider was a great success. Connecting to the IP servers was also very straightforward. At the same time, we built two pilot retrieval systems with Elster-Honeywell which enabled us to gather initial experience. In hindsight, it was no problem at all.

Journal: Mr. Fiene, what advice would you give to others who are facing establishing a new communications system for data retrieval?

Fiene: I would say the main thing is that you first clearly define what the basic requirements are. Elster-Honeywell helped us with the collation and documentation of these require-

ments. Then you have to get everybody around the table, particularly the IT staff. But there is nothing worse than going to a meeting like that without being prepared. That makes the whole thing a waste of time.

And all the marginal conditions must be really clear before the actual roll-out. Building a pilot system, even if it does not transfer productive data, may help to identify possible weaknesses that have not even been considered.

Journal: What do you like about the ZM1, other than the fact that it can convert volumes?

Balczukat: Yes, you might be surprised, but that is actually a minor thing. The ZM1s are capable not only of displaying fault messages, but also sending them by e-mail. This means

that we know at all times about the status of our volume conversion devices.

Journal: That's interesting. How does it work in detail?

Balczukat: The whole thing works by using the same cellular network that supplies the actual data. An e-mailbox into which such error messages are loaded has been created. This e-mailbox can be accessed from the computer in the office. Forwarding makes access from a smartphone possible.

And the ZM1s are parameterized so that in the event of a fault, they send an e-mail automatically. Then, a few seconds later, it arrives in my mailbox. The VPN cellular network can export these mails and send them anywhere using the Internet. That is why there is no security risk.

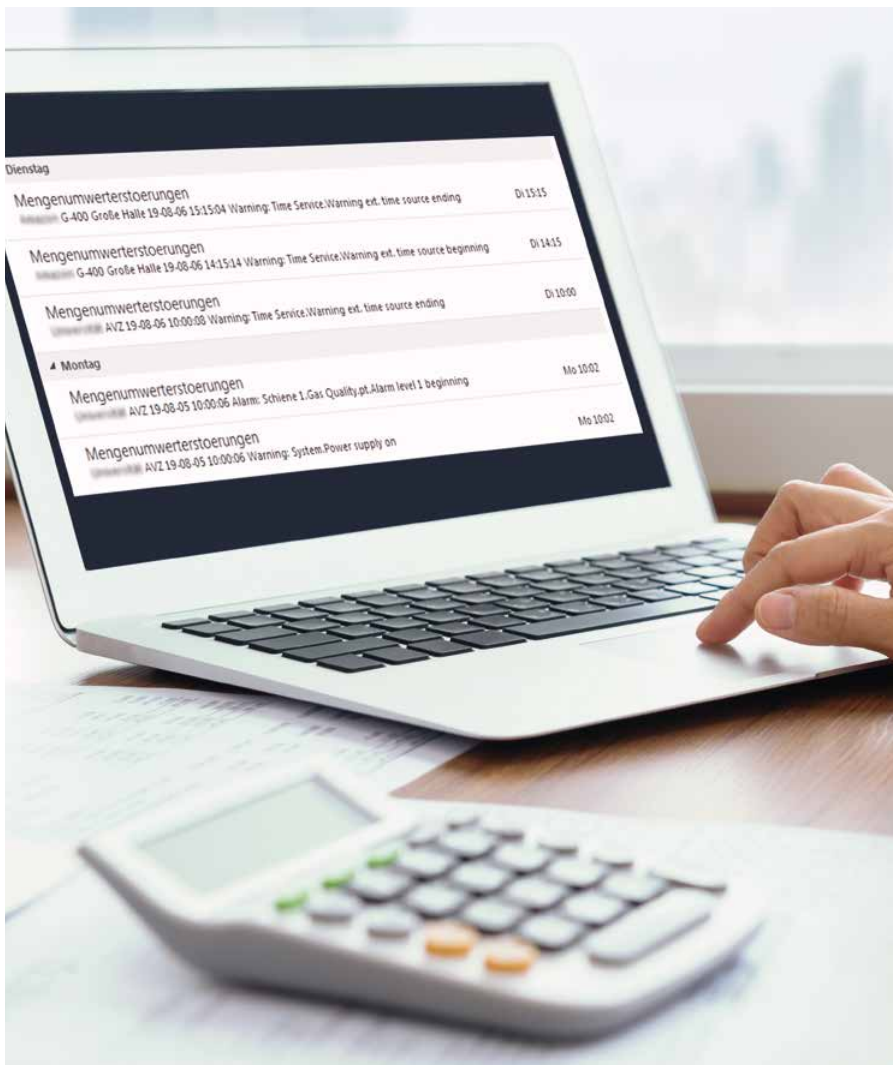
Journal: How does this specific function help you in your everyday work?

Balczukat: The mails not only tell me that there is a fault, but they also give the reason for the fault. This enables me to assess their priority and means that I am perfectly prepared for fault clearance. And I can improve my procedures because I only have to travel to a single metering system, as I already know that it has suffered a fault.

Journal: You have told us about your experience, which can certainly be helpful for other metering systems. Thank you very much for the interesting conversation.

The interview was lead by Ulrich George.

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THE RACE IS ON – BUT ARE YOU PREPARED TO WIN?

You want to run a marathon. But, it seems like a daunting task, so you enlist the help of friends and family who have already experienced race day. You also ask experts for their advice on effective training techniques: How fast should you run at each mile marker? How do terrain and elevation affect performance? What should you be eating? What time of day are you the fastest? Which brand of running shoes will help you perform better?

Whatever the challenge we may face, how we arrive at answers to questions or problems is often met with an overabundance of resources and data inputs that can seem impossible to process in a meaningful way. Technology today brings us endless access to possible inputs. Rapid advancements in computing, data management, and analytics, as well as the number of connected sensors in devices, are growing at a rate that we cannot fully comprehend.

NETWORKING CREATES A NEW ECOSYSTEM

We can track data in so many ways, but where to start? The more data, the better the feedback. Once you are connected, you may not realize that you rely on advanced data science and even artificial intelligence to deliver insights designed specifically for you. As the marathon runner, you want to make sense of all the data from your fitness tracker, cell phone, and everything else to ensure you can achieve your goal.

The same transformation holds true for the gas distribution industry. Connected technologies and advanced data analytics are revolutionizing processes, operations, and safety, and just like the process an athlete goes through in preparing for a race, utility operations cannot be transformed overnight. Continued investments in advanced grid capabilities and connected infrastructure are providing an entirely new ecosystem of possibilities with rapidly evolving edge-to-cloud solutions that enable local decisions and drive resiliency.

ACHIEVING GOALS AS BEST

Energy providers within the industry are also in the same situation. These utilities need to work through various stages of data strategies and apply them to their business operations. Big data and connection technologies enable operators to analyze data across systems, identify faults or risks, and, more importantly, prevent them. As in running a marathon, the focus is on achieving peak performance and meeting key goals: minimizing risks,

optimizing safety, solving problems, controlling costs, and improving revenue. Gas utilities can transform their operations using a disruptive approach across verticals – from product design, operations, customer engagement, gas usage, and demand to the resources available to meet those needs.

END-TO-END SOLUTIONS FOR THE GAS INDUSTRY

Now, more than ever, gas utilities require a systemic and holistic approach to data science, software, and system integration to truly optimize the value of data and determine how to operate more efficiently and reliably. Through integration of a seamless end-to-end gas distribution system, which include reliable smart metrology infrastructure, advanced communication modules and networks, data management, and predictive analytics, gas utilities can mitigate safety hazards front line personnel are faced with, determine where gas diversion could occur within the network, and optimize the accuracy of meter



analysis to ensure there is no lost revenue. However, most importantly, they are able to adapt their actions to contribute to a significant increase in efficiency and productivity.

LPWAN TECHNOLOGIES FROM HONEYWELL

As a leading global technology provider, Honeywell is committed to putting actionable insights into the hands of the energy industry and our gas utilities to better serve customers. Our integrated install-ready LPWAN (Low Power Wide Area Network) solutions are built to utilize CAT-NB1 and CAT-M1 technologies of current and future standard cellular networks. This enables utilities to remotely monitor assets, collect and analyze vital data, improve worker safety, and boost operational efficiency.

Metering solutions such as the BK-G..ETe with themis[®]uno index and AC-250NXS (NA) combine proven innovation with cutting-edge technology and provide innovative utilities with substantial competitive advantages and efficiency benefits.

Our real-time “Internet of Things” (IoT) predictive analytics platforms such as Honeywell’s Videre™ Solution Suite and EnergyAxis[®] help utilities to collect and analyze data and gain actionable insights for meeting their critical safety-related, operational, and business challenges.

Just as you might rely on a team of experts in your quest to run a marathon, gas utilities can engage a team

of energy management specialists to help develop intelligence to meet their goal of improved performance, greater efficiency, increased reliability, and significant cost savings.

Honeywell is here to help with those needs. Expect results. Expect insights. Expect experience. Look forward to having a leading edge and success.

Dr. Harald Dietrich
harald.dietrich@honeywell.com



Gas meter BK-G4..ETe with themis[®]uno index and AC-250NXS

EVERYTHING CHANGES & EVERYTHING STAYS THE SAME

CHANGE IS THE ONLY CONSTANT

I don't like changes, I am what they call a "conservative." I have been with my wife for 21 years. All the cars I have ever driven have been black. And every year for the last seven years, I have gone camping with the same group of people. I'm still with my wife simply because I cannot live without her. My cars are always black because I see any other color as trend-sensitive. And I am just so at ease with these people I go on holiday with every year that I would be lost without them.

Despite this, we need change to move forward. We have been selling the EnCal 3000 gas chromatograph (GC) for 13 years. I still look at this machine as being the best in the world. However, just like the best car in the world, it comes at a price. We also need something at a different price point in order to tackle that market as well.

When we were looking for technology for a new GC for natural gas, we found that all of them used the same tech-

niques, but always a bit different. As you might know, a GC is an analyzer system where gas gets injected into a carrier gas stream, separated into its constituents, and detected by a thermal conductivity detector (TCD) at the end of a column. When we make these components on the chip level, we can downsize the form factor (volume) and reduce the price. In addition, the amount of carrier gas used decreases, and the repeatability is better when parts are smaller.

A lot of companies were doing "GC on a Chip" or micro-electromechanical systems (MEMS). And in the end, we found one supplier which fitted our needs. Using MEMS columns and injectors as well as thermal conductivity detectors (TCD), our R&D team has developed a brand-new gas chromatograph for natural gas. We call it the EnCal 3000 proChain. This system uses the same housing as the EnCal 3000, which enabled us to shorten the design phase.

The EnCal 3000 proChain has different colors to distinguish between the two versions. It is built around our field-proven enCore platform. This platform is already used for our flow computers, ultrasonic flow meters and now for our new GC.

Our new GC is more of the same, yet very different. In essence, it is a new technique, but it runs on the same GC principles, in the same housing, using the same software as other Honeywell products. As I stated at the outset, everything changes and everything stays the same.

Hans-Peter Smid
hans-peter.smid@honeywell.com



UPGRADE TO MEET THE NEW STANDARD

J90 MKII REGULATOR

For many years, those installing the G40 (U65) and G65 (U100) industrial and commercial diaphragm meters have been able to use the 3" (80 mm) Elster Jeavons J90 regulator.

The J90 complies with the UK standard IGEM/GM/PRS/33. A recent revision of the standard lead to a tightening of the performance requirement resulting in the 3" J90 regulator being redesigned and upgraded.

The new version offers the same high levels of build integrity and production quality as the old unit, but is tailored to meet the exacting requirements of the latest standard and delivers even higher levels of performance. So much so that there is now a version that matches the capacity of the G100 (U160) diaphragm meter with a flow rate up to 160 m³/h (0.6 s.g. gas).

Previously, this was only possible with a 4"(100 mm)-sized regulator, so using the new J90 considerably reduces installation costs and saves space.



It has full approval in accordance with the new IGEM/GM/PRS/33 standard. Two versions of the 3" unit are available:

1. For fitting to G40 (U65) diaphragm meters with a flow rate up to 65 m³/h and the G65 (U100) diaphragm meters with a flow rate up to 100 m³/h.
2. For fitting to G100 (U160) diaphragm meters with a flow rate up to 160 m³/h.

For further information about price and delivery, please contact your local sales representative.

Paul Webster paul.webster@honeywell.com

37TH INTERNATIONAL NORTH SEA FLOW MEASUREMENT WORKSHOP

WELCOME TO THE NSFMW

We're in! Welcome to the Honeywell booth and take advantage of the exchange of experience and future-oriented discussions! October 22 – 25, 2019, at the Quality Hotel Tønsberg, Norway.



CERTAINTY IN UNCERTAIN TIMES

Do you hate it as much as I do when a manufacturer tries to make you believe that a single tool or a single product will solve all your problems – from accurately measuring your gas consumption to taking your dog out for a walk and making the coffee when you get up in the morning.

THE RIGHT TOOL AT THE RIGHT TIME

At Honeywell, we believe in the old tradesman's adage of having the right tool at the right time in the right place. And this not only applies to our traditional measuring equipment, but also to our software solutions. That is why Honeywell has a whole range of solutions in its portfolio which focus on the individual challenges faced by our customers.

But, of course, software has a major benefit compared to classic measuring instruments – the facility to update much more frequently and adapt to our customers' wishes much more quickly.

MEASUREMENT IQ R110

Honeywell's condition based monitoring tool for ultrasonic and station systems is the software solution with the most aggressive development program – this year alone, we will publish three major releases. Version R110, which has been available since June, supplies two major expansions which our customers all over the world were looking eagerly forward to.

PRECISION AND ACCURACY

Whether it concerns gas or the incredible 100 m world record time of Usain Bolt, every measurement has two influencing values – precision and accuracy. While precision tells us how closely bunched multiple measurements are, accuracy tells us how close we are to the actual measurement. In other words, did Usain Bolt actually run the hundred meters in Berlin in 2009 in 9.58 seconds or was it perhaps 9.59 seconds because the watch had an inaccuracy of 0.01 second? Or perhaps even 9.55 seconds because our device had a precision uncertainty of 0.03 seconds?

UNCERTAINTY IN GAS METERING

The topic of the "Uncertainty of precision" in gas metering has also been looked at by the International Organization for Standardization ISO, and for the first time, it has published a binding regulation to calculate uncertainty in the form of standard ISO 17089-1 (Fig. 1).

Honeywell has now integrated this calculation in Measurement IQ R110 after requests by many of our customers and it now calculates the actual uncertainty of your measurement results in seconds – currently only for the measuring instrument itself.

The next release, which is currently planned for Christmas time and will be supplied free of charge to all our customers, will extend this to the complete station uncertainty.

BASIS FOR INVESTMENT DECISIONS

It is not possible to completely eliminate uncertainty; but minimizing uncertainty is certainly feasible. That is why Measurement IQ R110 not only supplies you with a percentage for the uncertainty which provides you with additional data about the "health" of your metering system, but is also a concrete value in m³ on gas, whose measurement is "uncertain." When multiplied by your gas price, this means that you always have a concrete figure which can form the basis for investment decisions and also for contracts with customers and suppliers.

SUPPORT FOR OTHER MANUFACTURERS

We have a wide range of customers. Of course, Honeywell would be delighted if our customers only used Honeywell products. But in reality, there are often outline conditions which require the use of multiple manufacturers – or, in some cases, this may even be required by law.

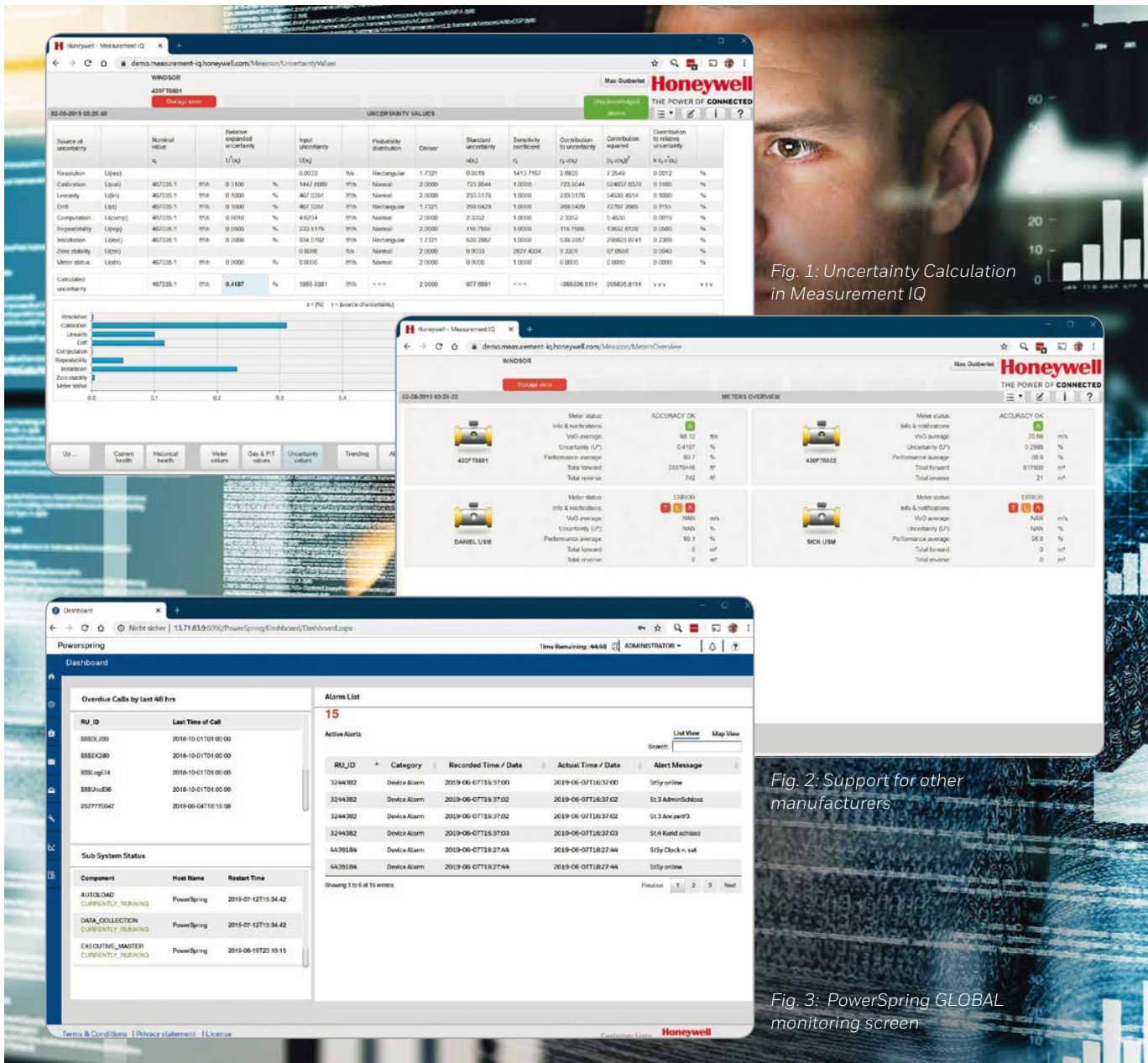


Fig. 1: Uncertainty Calculation in Measurement IQ

Fig. 2: Support for other manufacturers

Fig. 3: PowerSpring GLOBAL monitoring screen

This is why, from this version, Measurement IQ R110 will also support ultrasonic meters manufactured by SICK and EMERSON. From the next version, support for RMG and KROHNE will also be part of the product portfolio.

With this in mind, we would also draw your attention once again to the ISO. After many years of discussion, they have finally agreed a standard for the assignment of Modbus tables for querying the product parameters. All the leading manufacturers have undertaken to implement this standard, which

means that an end to the Modbus configuration chaos is now in sight (Fig. 2).

REMOTE READING MADE EASY

Honeywell not only focuses its software solutions on the high pressure sector, but also on medium and low pressure applications.

For many years, in the USA, Honeywell has operated a remote reading system for volume conversion devices with the name PowerSpring. With 100,000 devices currently in live operation, this is a mature, time-tested system.

So what could be more logical than expanding this system to cover EK series volume conversion devices and DL series data loggers, thus also making it accessible to our customers outside the United States.

POWERSPRING GLOBAL – FOR PROFESSIONALS

If you compare PowerSpring GLOBAL with conventional remote reading systems, two architectural features immediately come to the fore (Fig. 3).

PowerSpring GLOBAL was developed for battery-operated volume conversion devices which are connected using cell phone solutions such as 3G or 4G. Naturally, it can also read mains-powered devices or those with a DSL connection, but that is easy. What is much more difficult is handling topics such as “Wake-up windows”, “Bandwidth restrictions” and “Firmware update over the air” if the volume conversion device is reliant on the battery and every second of delay

means a reduction in service life and higher costs for our customers.

SCALABILITY – FROM MASSIVE TO TINY

The second architectural feature of PowerSpring is its scalability. Honeywell supports customers with 50,000 volume conversion devices on the system – as well as customers with just three devices. PowerSpring GLOBAL provides a commercially and technologically sensible basis for both these

groups. And we also have a solution for customers wishing to leave the remote reading operation completely to Honeywell. Our Total Data Service (TDS) supplies you with data from your volume conversion devices directly to your desk every day.

Come with us on this journey and help us to develop the right tools at the right time in the right place for you.

Max Gutberlet max.gutberlet@honeywell.com

RELIABILITY AND LOW OPERATING COSTS

WHAT DOES QUALITY COST?

Johann Wolfgang von Goethe wrote in Faust: “Whatever comes into being merits nothing but perdition.” The realization behind this is as harsh as it is truthful. However, it makes a big difference whether the life cycle of a product is short or long and how much benefit or joy it generates up until the end of its life cycle.

A measuring instrument should measure as precisely as possible and over a long period of time. Numerous details must be taken into account to ensure that a diaphragm gas meter meets these requirements, from the development to the production. Suitable materials to handle the load need to be chosen. Valve slides, for example, have to retain their shape beyond the period of operation and should only suffer minimal wear.

The diaphragm should not shrink when exposed to heat or cave in under pressure. In order to meet these goals, a good design is required and all stages of production have to undergo constant monitoring.



Checking of a valve slide with a 3-D coordinate measuring machine

Diaphragm gas meters with a carelessly implemented design, components, or production will, by their nature, succumb to a measurement error in the form of an undermeasurement eventually. Our competitive analyses confirm this property. A deviation in the form of an undermeasurement means gas going unpaid for. This share of the gas is therefore not included in the invoice and represents a loss for the gas supplier.

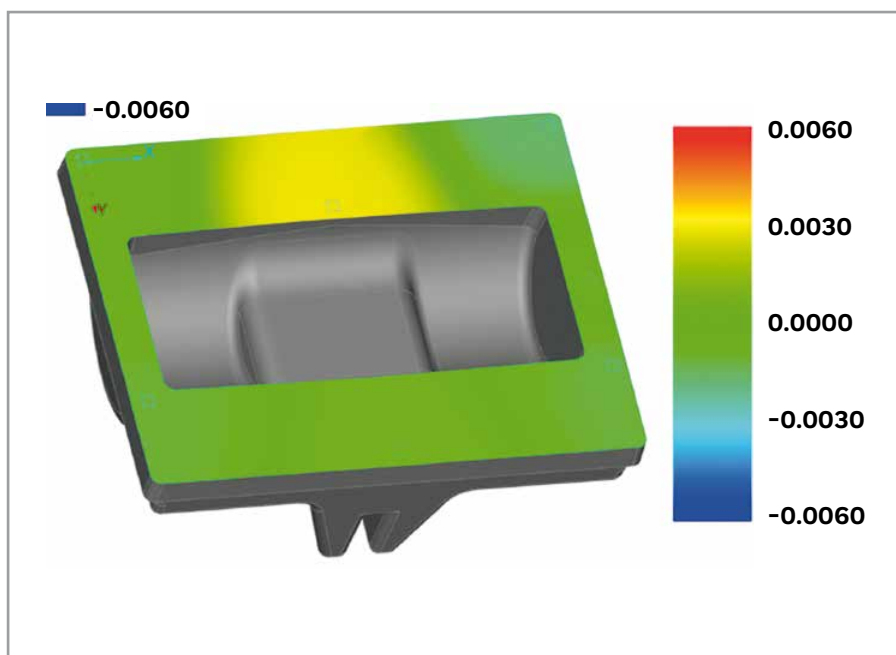
This example highlights the scale of such a quality deficiency:

COMPARISON OF ELSTER DIAPHRAGM GAS METERS WITH LOW-COST PRODUCTS

Calculation example: Costs caused by measurement error (without consideration of interest and time effects)

| | | | |
|---------------------------|---------------------------|---------------------|----------------|
| Consumption | 2500 m ³ /year | | |
| Gas price | 6.5 ct/kWh | | |
| Heating value for billing | 10 kWh/m ³ | | |
| | Elster | Low-cost | EN 1359 |
| Measuring deviation | 0.25% | 0.5% | ±1.5% |
| Measured volume delta | 6.25 m ³ | 12.5 m ³ | |
| Gas price delta | 4.06 p.a. | 8.13 p.a. | |
| Unmetered gas | | | |
| after | 12 years | 12 years | |
| Total | € 48.75 | € 97.50 | |

Quality is not expensive, but value for money!



Flatness of a valve slide

Quality requires expenditure on development and production – but quality also means reliability and low operating costs.

Hans Arp

hans.arp@honeywell.com

In Germany, the calibration validity is ideally prolonged based on a spot check process. This tried-and-tested process secures vast cost savings and provides the end customer with measurement stability – and therefore a fair billing of consumption. For us as manufacturers, the process means that our meters remain connected to the grid for a long period of time and therefore fewer are sold initially; on the other hand, the quality is evident and we are ensured lasting success. In other countries, gas meters are recalibrated after a few years or even left unchecked within the grid for many years. In all of these cases, a lack of measurement stability leads to financial losses for the gas suppliers.



Mr. Zeisberg adjusting the diaphragm gas meters

HONEYWELL **GAS UNIVERSITY**

Did you know that Honeywell welcomes more than 2000 gas experts to our more than 40 training courses every year? And did you know that over 90% of the courses are booked up within four weeks of printing and publishing our annual training catalog?

GENERATION CHANGE DRIVES TRAINING

The generation change from the baby boomers to generation X is in full swing – more than 70% of the professionals in the gas industry will retire in the next five years. This will create a huge gap in knowledge. For some years now, Honeywell has made this a priority and in 2019 is investing heavily in the expansion of capacity for all matters related to training.

While many of our competitors are focusing exclusively on online learning, we at Honeywell have decided to employ a hybrid approach and to invest in both fields – classical training in a classroom AND online training at home or in the office.

And you, our customers, are proving us right. Our attendance classes have never had as many participants as in 2019, we have never had as many requests for customer-specific training as in this year, our sales and partner training courses were never as popular as in 2019.

GAS UNIVERSITY EXPANSION FOR 2020

This is a reason for us to set the planning of our activities for the coming year on a new foundation and within the framework of a new program – the Honeywell Gas University.

YOUR CONTACTS FOR TRAINING COURSES

Gas University:
gas.university@honeywell.com

Gas Metering:
Paul Schamari
paul.schamari@honeywell.com

Gas Control:
Karsten Kloppe
karsten.kloppe@honeywell.com

USA Volume Converters:
Pierre Dufour
pierre.dufour@honeywell.com

Alongside our established training centers for gas meters in Mainz (Germany), gas pressure regulators in Kassel (Germany), and volume converters in Cincinnati (USA), we will also be active in new markets, in particular in the Middle East – Dubai – as well as in the Far East in our service center in Kuala Lumpur.

The whole organization is being realigned and a new training management system is being introduced, which will make it easier for you to choose, book, and follow-up your courses, and which will help us to be more effective in personally supporting our participants.

EVERYTHING IS DIFFERENT – BUT STILL THE SAME!

There is no need to worry – because at Honeywell, continuity in matters of training is as important an issue as are innovation and growth. You will still have your long-standing contacts for training (see Contacts) and we will continue to offer public courses for multiple customers, as well as customer-specific special courses.



Continuity in training is also an important topic for our customers. That is why in 2020, we will offer for the first time a complete Honeywell Gas Engineer Training Course, which will be made up from several individual courses, and at the end of which a certificate will be awarded. Alongside

this proof of knowledge for commissioning and maintaining gas metering and control lines, it will also be possible to enjoy other benefits, such as discounted access to Honeywell events or direct access to our developer team, as part of the Customer Advisory Board.

You can find all of the new developments from Fall onwards in our new 2020 Training Catalog, which as usual you can obtain online or fresh off the press in one of our training centers.

Max Gutberlet max.gutberlet@honeywell.com

“INCORRECT” BATTERIES IN THE DEVICE?

ALWAYS BUY SPARE PARTS FROM THE MANUFACTURER

Saving in the wrong place is never a good idea. The cases coming to our attention are increasing in number: Both from Germany and elsewhere, we are receiving numerous complaints about the function of batteries for volume conversion devices and data loggers.

The complaints relate to the service life or function of the batteries in some devices. Honeywell has investigated these cases and found the reason for them. The analysis in these cases has shown that the batteries used by the customers resulted in the complaints.

We are talking here about batteries which are not approved for Honeywell devices. For example, they have been purchased from the internet or through other channels and simply fitted into Honeywell products.

Some suppliers are expressly advertising that their batteries are suitable for Honeywell volume conversion devices and data loggers (EK/DL). However, these are not genuine batteries. The use of “incorrect” batteries to save money, for example, is not permitted and also presents a risk.

The consequences of “third-party batteries” may be significant:



- The EU declaration of conformity is voided.
- They have neither been tested nor approved for use in potentially explosive atmospheres (Zone 1).
- They present a risk to both function and safety.
- No warranty/guarantee.
- Honeywell Customer Service will not carry out any work on affected devices.

Ultimately, only the manufacturer can guarantee the explosion protection, function, and warranty for spare parts (for example, batteries).

Our price list with the product catalog includes the appropriate battery order number. Please, therefore, remember when placing orders for spare parts, that products supplied by the manufacturer are safe!

Sebastian Hintz sebastian.hintz@honeywell.com

HONEYWELL USER GROUP USA

This year's Honeywell User Group conference (HUG) in Dallas, TX had a very special 'adventure' in store for visitors.

On June 9, when most of the 1500 HUG visitors arrived, a heavy storm raged above the city of Dallas. This led to a huge power failure which directly affected over half a million people – including our customers at the conference hotel in Dallas. As you would expect of a good hotel, there was an emergency power supply, but unfortunately, this only covered the con-



If only the person who planned this emergency power facility had listened to the HUG talk on 'Emergency Preparedness,' such an error would clearly never have occurred!

Over the following days, the hotel as well as the weather sought to rectify this faux pas on the first day. Our customers were able to learn many



Long queue at reception

ference area and NOT the hotel area. As a result, none of the computers needed for check-in were working. The result: long queues of over 2 1/2 hours at reception.



new things and engage in direct discussions with numerous experts – because the aim of every Honeywell User Group is more about exchanging ideas with you, our customers, than just sharing product news.

Max Gutberlet max.gutberlet@honeywell.com

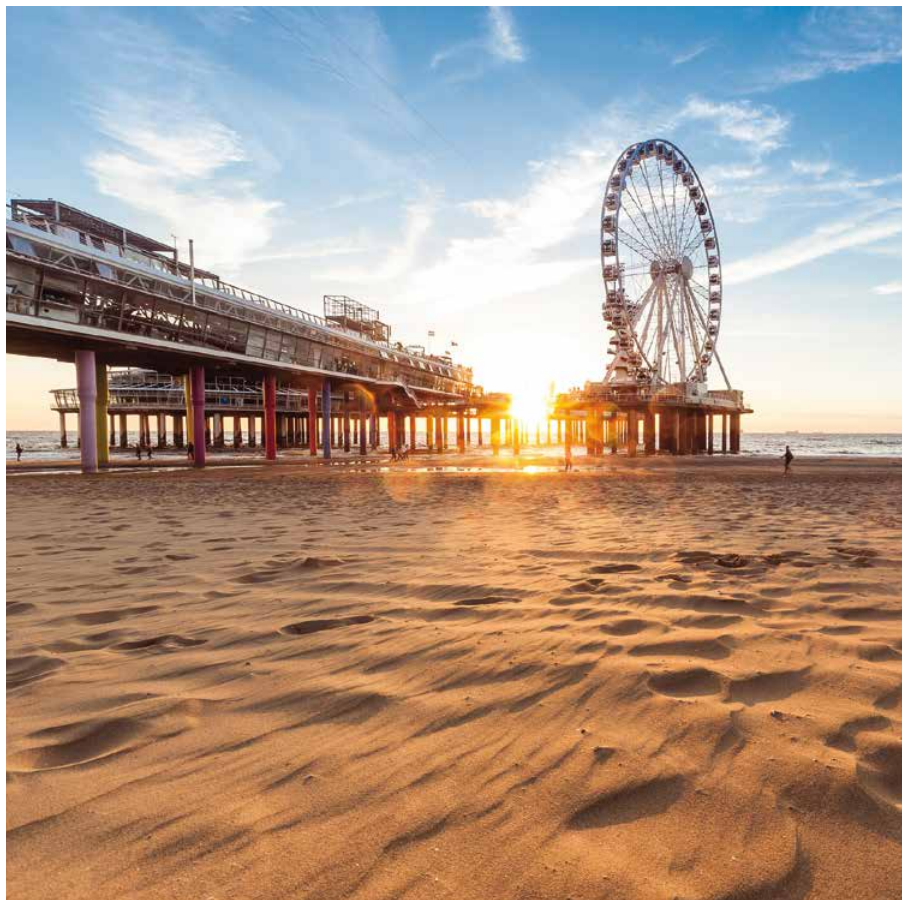
THE HAGUE, SEPTEMBER 23 – 26, 2019

HONEYWELL USER GROUP EMEA

This year, the Honeywell User Group EMEA conference returned to The Hague in the Netherlands – a few weeks earlier this time due to requests from many of our customers wanting to make the most of the better weather in late summer.

This year, the focus of the conference was on our new Honeywell FORGE® infrastructure, which brings together the best of local and remote process controls to provide an ultimate overview of your process efficiency.

In the gas sector, the focus this year was also on the further development of software solutions and the fields of hydrogen and biogas, both of which are playing an increasing role in the global energy mix.

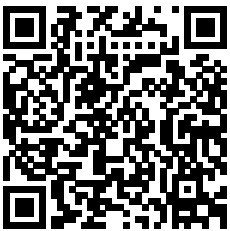


Many of our customers took advantage of this opportunity to talk with decision-makers, developers, and experts about the latest trends on the gas market and how we can work with them to develop efficient and future-proof solutions.

Thank you for joining us in The Hague.

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THE
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