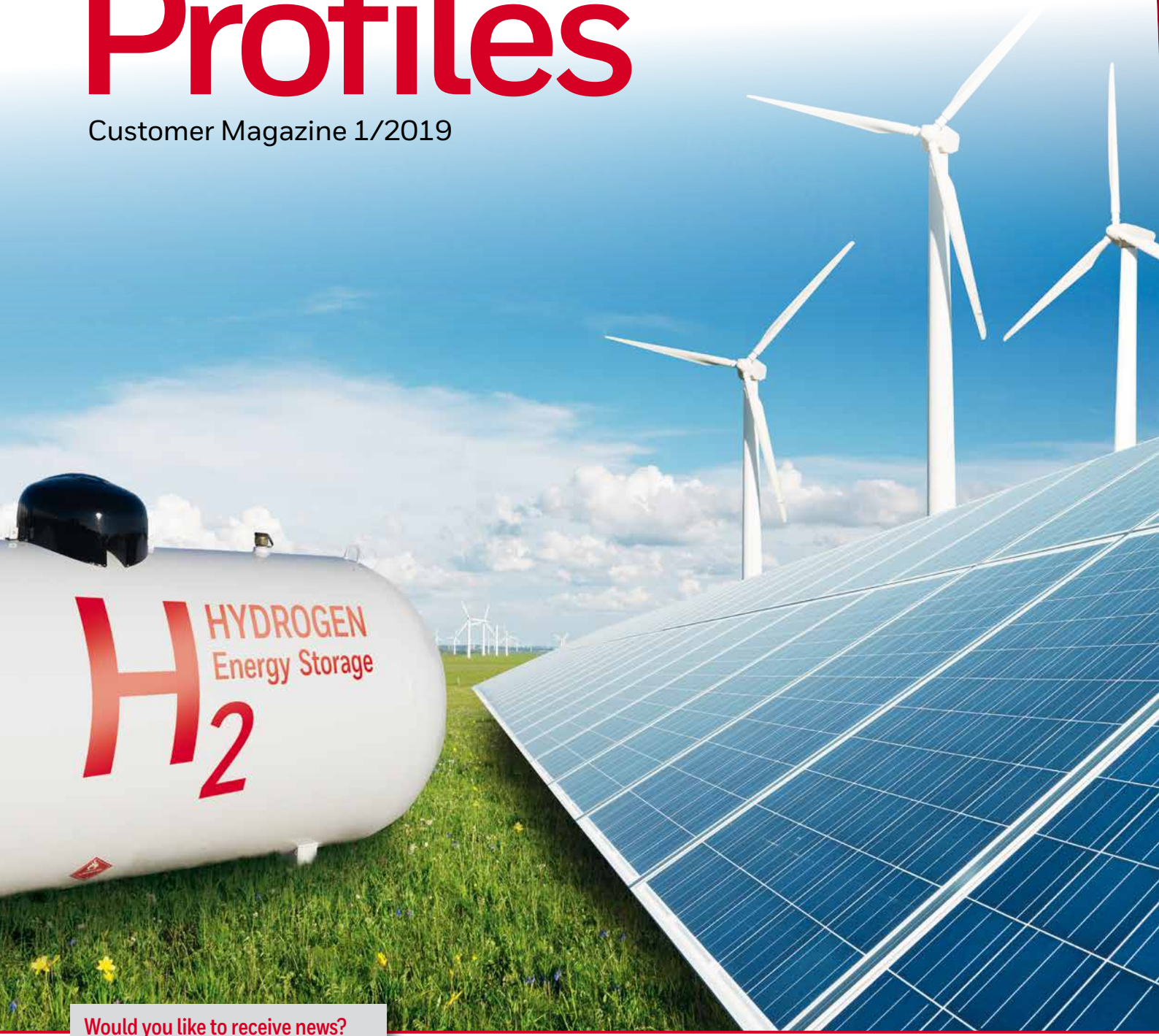
Honeywell

Profiles

Customer Magazine 1/2019



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When Firmware Rules Hardware, Be Ready for Surprises

Jean-Paul Piques

Global Gas Product Line Director

Last week, my wife called me in despair. Our car, a soon-to-be vintage Saab 9-3, refused to accelerate on the highway, and no matter how hard my wife pressed the accelerator, the car maintained a sluggish speed of 60 km/h, creating a long line of disgruntled fellow drivers behind it.

My wife eventually managed to get the car and herself into a nearby car repair shop, where to her surprise, rather than looking under the hood, the mechanic pulled up a PC, connected a wire, and started to look at a screen full of blinking alarms. Anyone less informed would have found this "Christmas tree" of issues somewhat overwhelming. Not that mechanic, who, relying on years of experience, and suspecting nothing was wrong, calmly proceeded to erase all alarms. Next thing my wife knew, the car was back on its feet, so to speak, ready to go. In other words, in order to fix a car these days, there is no need to use a wrench, just press the reset button.

I cannot help thinking this is fine, entertaining even, when you have your feet, or tires for that matter, firmly on the ground, yet I would not like to be a passenger on a plane where the pilot must press the reset button because the firmware validation was incomplete, or running a critical application on crucial infrastructure where sensors, embedded firmware and software get stuck into an unplanned infinite loop with its cohort of unwanted, and possibly nasty, side effects.

With the advent of connected objects, the probability of unwanted side effects has increased exponentially. While that potential risk should not deter the industry from pressing for continuous innovation, this will give food for thought for people, like you, or us at Honeywell, who worry about integration aspects and end-to-end system validation before products and systems are released to the market.

Next time you find yourself qualifying devices, ask yourself whether pressing the reset button will be an option in the field.

Jean-Paul Piques

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Water, Anyone?

We used to live in financial times, but it would seem we now live in environmental times. In the latest World Economic Forum Global Risks Report, environment-related risks account for three of the top five risks by likelihood and four by impact, closely behind weapons of mass destruction…Sobering.

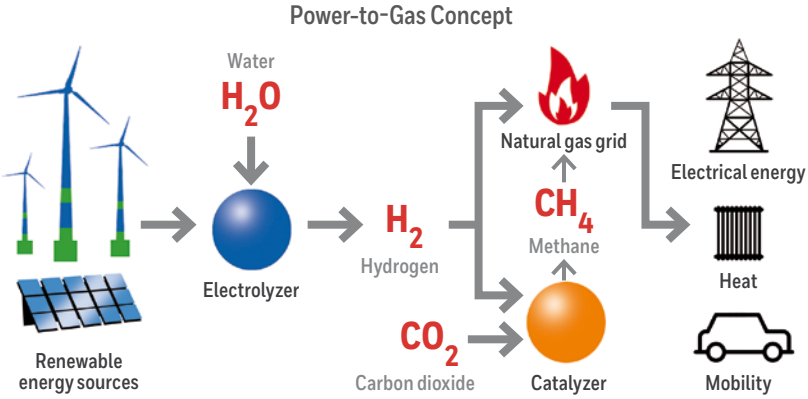
Changing climate and its cohort of negative externalities, ranging from water and food crises to large-scale involuntary migrations and massive supply chain disruptions, have been hitting the headlines often enough for anyone to notice. The Intergovernmental Panel on Climate Change now says we have at most 12 years to implement the drastic changes needed to avoid temperatures to rise beyond the Paris Agreement target.

While I am probably too old to skip school and sit along Greta Thunberg at those Friday climate demonstrations, I cannot help wondering whether we are going to get lucky this time. In his *Brief History of Humankind*, Yuval Harari correctly points out that what sets man apart as a species, and allowed him to prevail, was the ability to get large sets of individuals to collaborate towards common, superior objectives. Climate change is putting that special skill to the ultimate test.

If the problem is too big to be tackled with one, elusive, silver bullet, is it not preferable to take the divide and conquer route instead? To meet our ambitious greenhouse gas reduction targets, we need collective and combined responses using a mix of closely interwoven, collaborative technologies, dismissing the usual trade-off, either-or mindset.

In our industry, we are witnessing unprecedented change, and the trend from natural gas towards biogas and then hydrogen is a clear indication that collaborative approaches will help put together the pieces of the puzzle in response to our climate change challenge.

The basic idea behind “Power-to-Gas” or “Power-to-Hydrogen” is to utilize the surplus energy of renewable sources like wind turbines, solar panels, hydro-electricity... by converting it into hydrogen. The first step in this process is the use of this energy to produce hydrogen by splitting water into its constituents, hydrogen and oxygen. The second step is to feed the generated hydrogen into the gas grid. A possible additional step in this process could be recombining this hydrogen with carbon dioxide to form methane.



The big advantage of this step is that methane can be more easily injected into the natural gas grid.

This intelligent coupling between hitherto separated energy sectors brings some very positive, lucky even, side effects. The inherent volatility associated with the supply of renewables on the one hand, and the need to match nationwide demand with large variations in seasonality on the other, creates the need for a large energy buffer capacity. That large energy buffer is readily found in the existing assets of the gas grid infrastructure, potentially saving trillions of euros in capital expenditure. Blending hydrogen with natural gas in a range of 2% to 35%, depending on the characteristics of the infrastructure, is opening up new ways for other business models and applications as diverse as mobility, industrial processes, and heat supply among others, while helping to alleviate, in no small proportion, the CO_2 footprint of our communities.

While overall system integrity should not be underestimated, due to the mobility of the hydrogen molecule, the safety impact is moderate to negligible in transmission networks, provided that proper maintenance of gaskets is put into place to account for the different permeation coefficient of hydrogen. After all, up to the 1950s, similar infrastructures were handling manufactured or town gas with a hydrogen mix ranging from 30 to 50%.

So, what does this mean for Honeywell? Having been at the forefront of gas measurement and control for more than 150 years, we welcome the new technical challenges that hydrogen will bring, and we remain committed as ever to support our customers delivering energy safely to industries and communities. Today, our efforts are focused on reviewing our range of safety approvals, verifying the impact on materials used to anticipate possible hydrogen-induced embrittlement, and assessing the impact on metrology, which we expect to be contained at the hydrogen concentrations under consideration.

Indeed, if the go-to-market strategy planned for 2022 is achieved in the most progressive countries, we will be ready alongside our customers, as well as proud to have contributed to solving part of the climate change puzzle.

Jean-Paul Piques jean-paul.piques@honeywell.com

A GOOD Product Made Even Better

The RABO® success story continues. After recording sales of around 100,000 rotary gas meters around the world, our developers have again enhanced the product and have now improved its measuring range dynamics.

It is often the small things in life that satisfy us and make us happy. In the RABO product portfolio, we have now, in our customers' interests, extended the measuring range from 1:160 to 1:200, which in the case of the RABO G65 means that an additional gas volume of 100 liters per hour can be measured. With a total capacity of 100,000 liters per hour, that really is a small increase, but it offers gas suppliers new ways of designing and configuring new gas supply stations and makes the RABO suitable for use with large flow rate fluctuations in the lower measuring range.

This increased performance is possible, in particular, by the use of smooth-running ball bearings which achieve perfect stability and measurement accuracy even at high gas pressures of up to 20 bar. The tests and verifications required for this under EN 12480 have already been submitted to the German National Metrological Institute PTB in Brunswick, which is the notified body for metrological MID licensing, and the official extension to the approval is expected shortly. This certificate essentially contains two major changes:

- The addition of new Q_{min} figures in the measuring ranges table (Fig. 1, column headed 1:200) and
- The adaptation of the main plate (Fig. 2, example of G65 DN50 in 1:200).

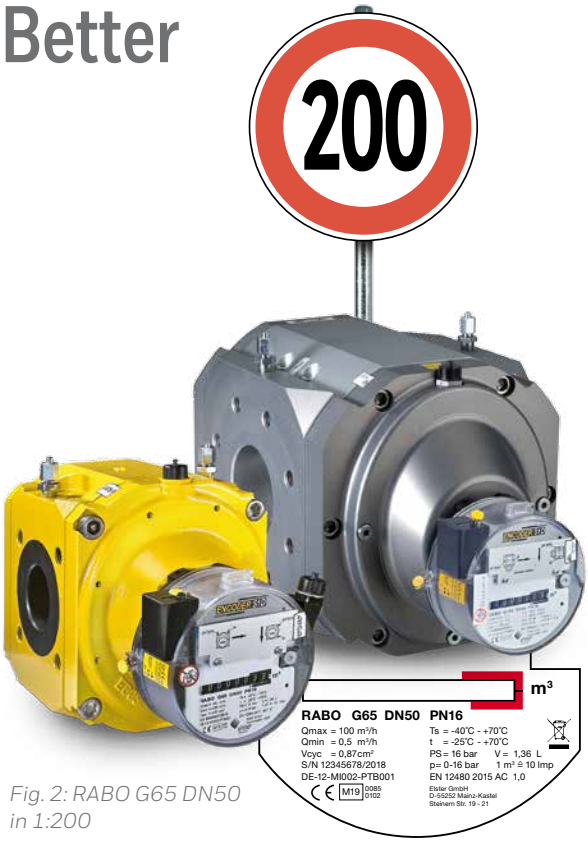


Fig. 2: RABO G65 DN50 in 1:200

The extended measuring range can be ordered in both aluminum and cast iron housing versions starting in May 2019. This means that the first RABO 1:200 rotary gas meters will be delivered to our customers around the middle of the year.

This is an example of us making a GOOD product even better. You can also rest assured that we have not compromised at all on product quality and durability.

Patrick Keiffer patrick.keiffer@honeywell.com

Fig. 1: Measuring ranges

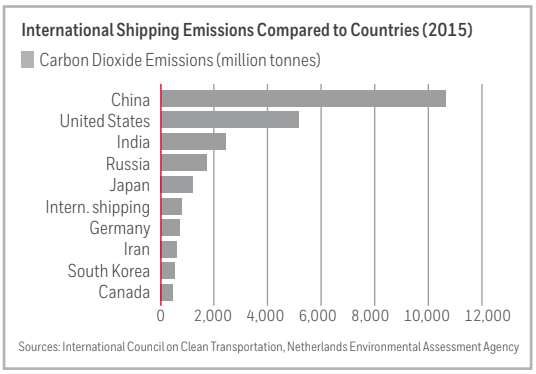
DN	Type	Q_{max}	Q_{min} (m^3/h) / Q_t (m^3/h)									V_{cyc}	dp
(mm)	G	(m^3/h)	1:200	1:160	1:130	1:100	1:80	1:65	1:50	1:30	1:20	(dm^3)	mbar
32	16	25	-	-	-	0.25 2.5	0.32 2.5	0.4 2.5	0.5 2.5	0.8 5	1.3 5	0.87	0.9
32	25	40	-	-	-	0.4 4	0.5 4	0.65 4	0.8 4	1.3 8	2 8	0.87	2.3
32	40	65	0.32 6.5	0.4 6.5	0.5 6.5	0.65 6.5	0.8 6.5	1 6.5	1.3 6.5	2 13	3 13	0.87	5.9
32	65	100	0.5 10	0.65 10	0.8 10	1 10	1.3 10	1.6 10	2 10	3 20	5 20	0.87	14.1
40	16	25	-	-	-	0.25 2.5	0.32 2.5	0.4 2.5	0.5 2.5	0.8 5	1.3 5	0.87	0.4
40	25	40	-	-	-	0.4 4	0.5 4	0.65 4	0.8 4	1.3 8	2 8	0.87	0.9
40	40	65	0.32 6.5	0.4 6.5	0.5 6.5	0.65 6.5	0.8 6.5	1 6.5	1.3 6.5	2 13	3 13	0.87	2.3
40	65	100	0.5 10	0.65 10	0.8 10	1 10	1.3 10	1.6 10	2 10	3 20	5 20	0.87	5.4
50	16	25	-	-	-	0.25 2.5	0.32 2.5	0.4 2.5	0.5 2.5	0.8 5	1.3 5	0.87	0.4
50	25	40	-	-	-	0.4 4	0.5 4	0.65 4	0.8 4	1.3 8	2 8	0.87	0.6
50	40	65	0.32 6.5	0.4 6.5	0.5 6.5	0.65 6.5	0.8 6.5	1 6.5	1.3 6.5	2 13	3 13	0.87	1.3
50	65	100	0.5 10	0.65 10	0.8 10	1 10	1.3 10	1.6 10	2 10	3 20	5 20	0.87	3.1
50	100	160	0.8 16	1 16	1.3 16	1.6 16	2 16	2.5 16	3 16	5 32	8 32	1.61	4.4
80	100	160	0.8 16	1 16	1.3 16	1.6 16	2 16	2.5 16	3 16	5 32	8 32	1.61	3.2
80	160	250	1.3 25	1.6 25	2 25	2.5 25	3 25	4 25	5 25	8 50	12.5 50	2.99	2.2
80	250	400	2 40	2.5 40	3 40	4 40	5 40	6 40	8 40	13 80	20 80	3.7	4.7
100	160	250	1.3 25	1.6 25	2 25	2.5 25	3 25	4 25	5 25	8 50	12.5 50	2.99	2.0
100	250	400	2 40	2.5 40	3 40	4 40	5 40	6 40	8 40	13 80	20 80	3.7	5.2
100	400	650	3.3 65	4 65	5 65	6.5 65	8 65	10 65	13 65	22 130	32 130	4.5	13.2
150	400	650	3.3 65	4 65	5 65	6.5 65	8 65	10 65	13 65	22 130	32 130	4.5	11.2

It Takes a Train to Make a Ship Run More Cleanly!

According to UNCTAD, which stands for United Nations Conference on Trade and Development, more than 90% of all goods transported are transported by ship. Global trade has increased exponentially over the previous decades and, as a side effect, the marine sector has become an area of attention when it comes to environmental protection.

Many of us have heard of the concerning fact that only a small number of ocean carriers generate more pollution than millions of cars. Two types of fuels were traditionally used in the marine industry, Marine Diesel Oil (MDO) and Heavy Fuel Oil (HFO). HFO is one of the most polluting fuels currently in use and, as a result, the emissions of sulfur and NOx are indeed shocking. On the other hand, one can argue that sea freight is the least polluting form of transport, when compared with viable alternatives like air freight or road transport. This is mainly because of the sheer volumes that can be transported by a single sea freight carrier.

When it comes to CO_2 emissions, the contribution of sea freight accounts for slightly more than 2% of global emissions, which may not sound like it deserves our highest priority when we are concerned with the environment. For example, when compared to the top CO_2 emitting countries, the contribution of ships is, at 2%, slightly higher than Germany's total emissions, and would rank in 6th place when considered as a country instead of a global activity (see graph).



- Standardized design
- Fast delivery times
- Small footprint
- No separate hazardous area created
- Robust and reliable solution
- Plug-and-play design
- Scalable to the required capacity

Without elaborating on the discussion about climate change and where best to put efforts in reducing one's environmental footprint, it is a fact that the marine industry is working on alternative fuel sources to minimize the emissions of polluting gases and particles. One of the developments is that heavy fuel with up to 3.5% of sulfur will be banned and replaced by fuel with less than 0.5% sulfur from 2020 onwards. Another trend is that Liquefied Natural Gas (LNG) is being used by a growing number of vessels. Many factors play a role in the decision of the fuel for propulsion, and it is a decision that is not easily made as it has implications for decades and the investments

involved are huge. Besides the switch to pure LNG-fired engines, there is also a growing number of vessels that are using dual fuel engines. These engines can run on gas as well as on diesel oil.

For both LNG-fired and dual fuel fired engines, Honeywell is building so-called GVUs (gas valve units) or 'gas trains', which are two generally used terms for the assembly of valves and instrumentation that is used to control the gas inlet to a gas engine. The main function of the gas train is to bring gas to the engine at the right pressure and in a safe and controlled manner and to ensure a fast and reliable shutdown of the gas when required.

These requirements are specified in the International Code of Safety for Ship Using Gases or Other Low-flashpoint Fuels (IGF Code). This

Continuous development of the gas valve units (GVU) and enclosures helped Honeywell Gas Technologies to win two major orders from Hyundai Heavy Industries (HHI). The orders consisted of 24 open-type and 24 enclosed-type GVUs for marine projects with HHI HiMSEN engines.

Honeywell's 30+ years' experience in building GVUs, extensive dealings with globally renowned gas engine makers, local sales support from its Korean subsidiary, and competitive offerings led to increasing orders from HHI beginning in 2018. Apart from the orders mentioned above, Honeywell received several other orders for open-type and enclosed-type GVUs. The same recipe convinced Bergen Engines from Norway to place orders for 70 GVUs for land applications, 12 enclosed-type and 16 open-type marine GVUs since 2018. With orders coming from other important gas engine makers such as Caterpillar, MAN, and several engineering contractors from Germany and Jenbacher from Austria, Honeywell Gas Technologies is partnering with a growing number of gas engine manufacturers.

Code dictates that all gas-consuming equipment must be provided with a set of "double block and bleed" valves. This part of the IGF Code has been in effect since January 1, 2017 and to accommodate this market requirement, Honeywell has developed a special enclosed version of a gas train called the E-GVU.

When gas is transported through a single-wall pipeline on board of a ship, each room the gas pipeline is entering becomes a hazardous area. To overcome this problem, the pipelines are made from double walls with a space between the walls which is vented. By means of gas sensors, it can be detected whether the vented gas contains natural gas, which would imply leakage in the inner pipe.

This type of protection works very well for pipelines, but for a gas valve unit it is not that easy. This means that the location where the GVU is placed (normally the engine room) would still become a hazardous area and all equipment used in there would have to be ATEX approved. This is not an option and therefore a separate room, called fuel preparation or simply GVU room, would be required especially for the GVU. In case of conversion to LNG or dual fuel engines for existing ships, the engine rooms do not offer the space to create a separate room for the GVU. For such cases, Honeywell developed an enclosed GVU that creates a safe environment and that is vented in a similar fashion to the gas pipelines described above. Using the E-GVU, the customer can place the GVU close to the gas engine without running into problems with any hazardous areas that it would have generated if it had not been enclosed. Using an enclosed GVU results in significant cost savings when compared to using a separate GVU room. As a result, we see that even for new ships there is a trend using enclosures rather than designing fuel preparation rooms.

With the ongoing trend for cleaner fuels in the marine industry, nobody can predict what the market will look like 30 years from now. What we do know is that the market developments now ask for reliable solutions for using natural gas, which is a big step forward for the environment in many aspects.

Honeywell will keep investing in product development for GVUs in order to deliver cutting-edge technology to customers with the clear target of being a leader in this growing market.

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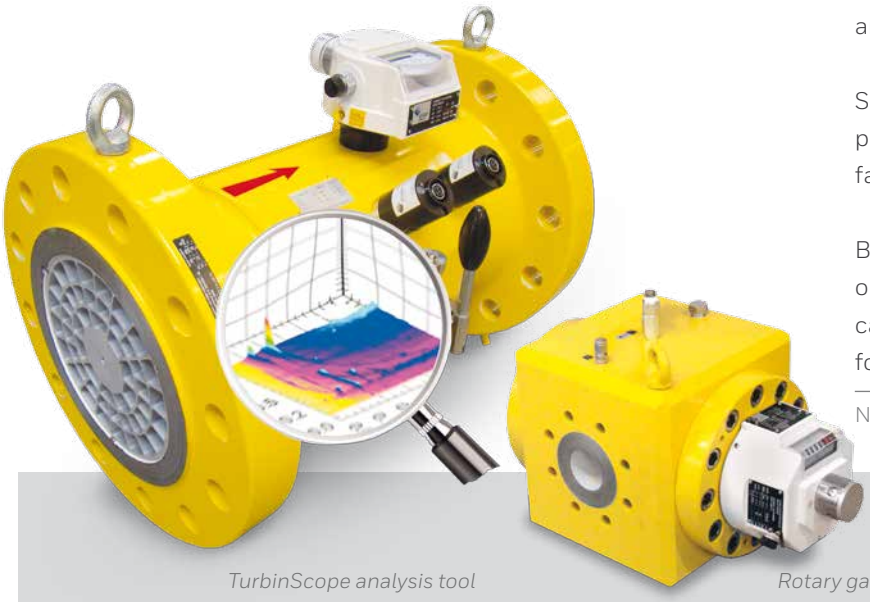
TurbinScope and IRM Special Products Removed From the Range

Gas Distribution Portfolio Streamlining

Over the past few years, we have enabled you to check the "health" of your turbine meters using a software analysis tool. The ad hoc analysis tool TurbinScope made it possible to assess the condition of the rotor blades and the ball bearings, for example.

Despite the possibility of predictive maintenance, demand for the product fell short of our expectations. Therefore, we decided to remove TurbinScope from the market.



TurbinScope analysis tool

Rotary gas meter IRM-HP

At the same time, we have also streamlined the product range in the rotary gas meter special products segment. The fact that former IRM products are now out of date makes it significantly more difficult to obtain the components required in this segment. The complicated production processes and the niche market demand mean that it is no longer possible to manufacture this product in a cost-effective manner. We have therefore removed IRM special products (IRM-HP, IRM-1 reference, IRPP and ISM68) from our product portfolio.

Service for devices installed in the field will be provided on the basis of visual inspection at the factory and the availability of spare parts.

By streamlining the portfolio and concentrating on the core requirements of our markets, we can focus more on your main needs and therefore provide you with the best possible support.

Nelson Silva nelson.silva@honeywell.com

Gas Grids and Gas Quality

Automation Technology Meets Natural Gas Distribution

Tried-and-tested measuring and control equipment from Honeywell has been used in gas pressure control and measuring stations for many years. Ever more complex gas grids and higher fluctuations in gas quality mean, however, that the need for regulator automation and remote system control is growing. A special focus should be placed here on the security of data transmission, so as to reliably and safely prevent unauthorized access to the gas distribution equipment.

The opportunities which "Automation Technology by Honeywell" can offer will be presented in more detail in the next edition of *Profiles*.

Michael Halm michael.halm@honeywell.com

FE260 With Ethernet Interface

In 2018, we launched an Ethernet interface module for use in the volume conversion device EK280 and data logger DL230. This means that we have a feasible solution in our product range for device installations in potentially explosive atmospheres (Zone 2) or in a safe area.

We can now supply the same module for use in the function expansion unit FE260 for reading a volume conversion device EK280, installed in Zone 1 – and not just for this application.

The Ethernet interface module for the FE260 now means that it is possible to connect a volume conversion device EK280 installed in Zone 1 to cable-based IP networks for remote reading (Fig. 1). These include a local area network (LAN), a DSL connection or even a cellular router. The same applications are supported, as are already available in the communication modules for cellular networks. In other words, in addition to classic PULL mode (TCPServ), PUSH mode (FTP) is now also possible. As an alternative for time synchronization via the control room (remote meter reading), the NTP protocol is available for synchronizing using a time server.

Fig: 1: FE260 with Ethernet interface module for reading an EK280 in Ex zone 1

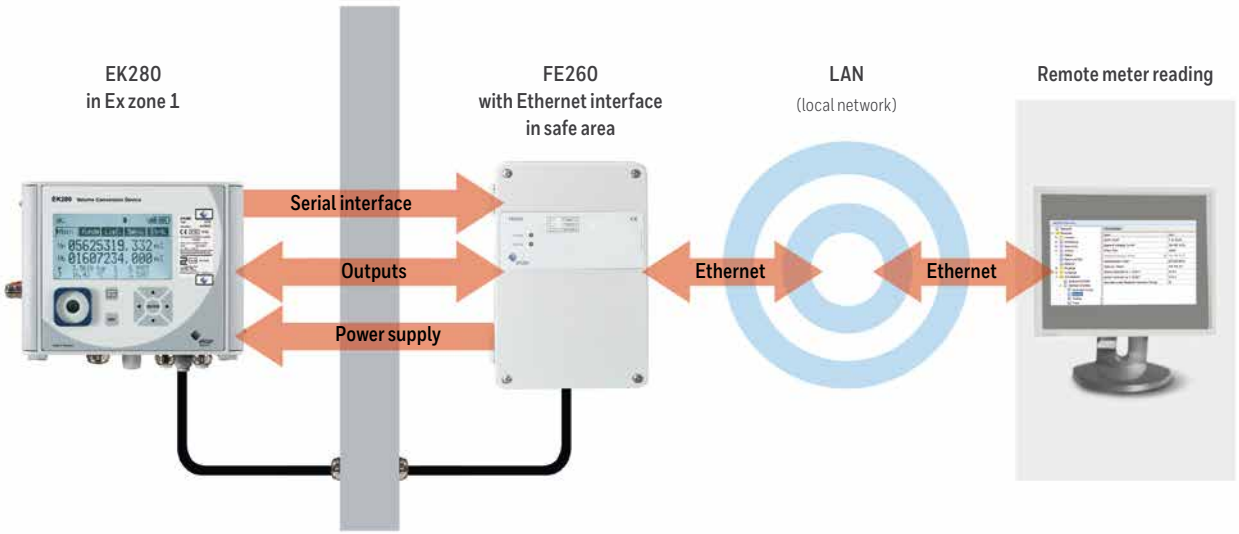
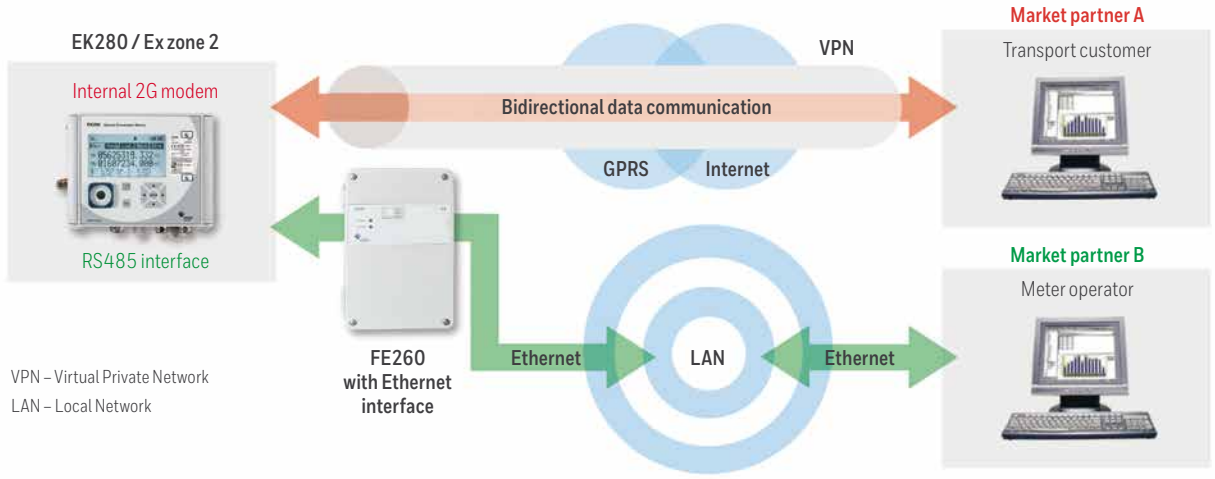


Fig. 2: Two independent IP data communication channels for the EK280, cable-based and wireless



The use of the FE260 with the Ethernet interface module is not just restricted to reading a volume conversion device installed in Zone 1. If a volume conversion device EK280 in the version for Zone 2 has already been equipped with a communication module (wireless or cable-based), the FE260 can be used as a second independent connection to a different IP network. This enables access to be made to the volume conversion device for a different market partner (e.g., for network interconnection points, Fig. 2). Another possible use is system monitoring. The second connector allows connection to a SCADA system.

The new Ethernet interface module for the FE260 closes a gap in the market. It is now possible to read the volume conversion device EK280 using a cable-based IP network even if it is used in a potentially explosive atmosphere. In addition, a second cable-based IP interface can be used for various applications for devices in Zone 2.

The configuration and commissioning procedures are just as easy as for the internal module using the enSuite configuration and analysis software (Fig. 3).

The new option of an Ethernet interface module for use in the FE260 extends the range of possible uses for the volume conversion device EK280. This once again shows how versatile the volume conversion devices and add-on units from Honeywell are in practical use.

Please do not hesitate to contact us if you have any questions. We look forward to providing you with support for using our devices.

Rüdiger Pfeil ruediger.pfeil@honeywell.com

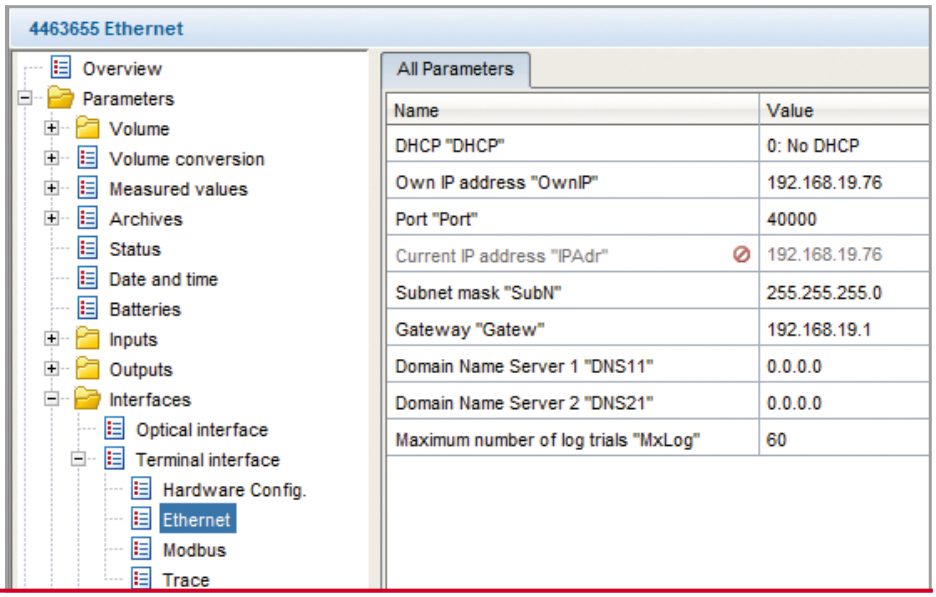


Fig. 3: Parameterization using enSuite – defining the network parameters

No Spark Without Software

Bits and Bytes Secure Gas Supplies for the Future

The gas business is a very traditional business: Honeywell-Elster has been manufacturing gas meters for our customers for over 180 years. Like all traditional technologies, we are moving with the times and are currently in the process of helping our customers to implement the transition from classic mechanical or pneumatic solutions to electronic systems, which offer greater flexibility and lower costs.

The common aspect of all electronic solutions is that they do not work without software. Come and join us for a short journey from the burner in your water boiler to your manager's desk – a journey in which we will show you the various components which characterize a modern end-to-end software solution.

Everything Starts With the Meter

The basis for every measurement is the measuring instrument. While electronic measuring methods are slowly becoming established in the transport sector, the industrial and commercial sectors are still dominated by mechanical devices, which have been supplemented with electronic equipment (volume conversion devices or flow computers). Naturally, these must be parameterized and maintained.

Over the years, Honeywell has developed a series of software applications to configure its electronic products, with examples including the Honeywell products SonicExplorer for ultrasonic meters and enSuite to parameterize volume conversion devices.

Many of our customers ask why we do not just have ONE tool for all devices. At Honeywell, we believe that for configuration and parameterization purposes, individual needs are more important than a universal solution. After all, you would not use a phase tester to change your winter tires or a torque wrench to fit an electric socket.

If we ask our customers about why they want a "universal" solution, we quickly find that they are more concerned about the cost of software maintenance. The PC that the field engineer carries with him must always be kept up to date and the software for all the hardware systems used must be maintained – a job both tiresome and expensive.

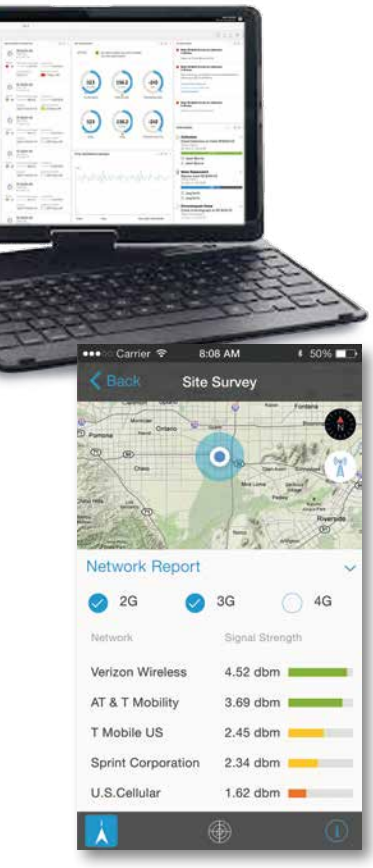
But of course, we live in the 21st century, which means that Honeywell has the perfect solution to this problem: The new version of the MasterLink maintenance software is not only available in a traditional PC version, but also as an app for Android and iPhone. As from the end of the year, MasterLink will also support EK volume conversion devices which are used in Germany and around the world, thus solving the update problem for you because the latest version will always be available for you in the Google PlayStore or Apple App Store.

And of course, MasterLink delivers a whole range of new functions which are made possible by the platform of a mobile phone or tablet – from the precise localization of the devices, the visual inspection of the installation status versus the actual state to a direct online connection to the Honeywell Technical Assistance Center.

Remote Data

Our device is now properly configured and measuring your customer's gas consumption. The next step is to read the data remotely. For many years, this was a gap in the Elster portfolio, as although we supplied outstanding

modems and communication devices, we did not have a software package for remote reading. This gap has now been filled – Honeywell has brought a powerful AMR system into the partnership in the form of PowerSpring GLOBAL, which will be available for our German and international customers starting in June this year.



The benefit to you is that this is not a new development, but a market-tested system which currently reads data from more than 100,000 end points and is in use at more than 20 end customers.

And as always, when it comes to remote reading, we do not just consider our big customers, but also small municipal utilities which do not have massive IT systems or lots of personnel to operate a remote reading system. With this in mind, more than 30 customers use our TDS 2.0 cloud solution which is based on PowerSpring GLOBAL – some of them for 5 volume conversion devices, some for more than 5,000. Regardless of how large or small your requirement – PowerSpring GLOBAL will adjust to your needs.

Trust Is Good – Control Is Better

And speaking of scalability, you surely use a modern SCADA system to monitor your systems, don't you? Honeywell is the undisputed global market leader in this sector with our Experion SCADA system, which is used and appreciated by customers all over the world, from South Africa to Norway, Australia to Canada, and among them BASF in Germany and PETRONAS in Malaysia.

But what if you are NOT a global player? What if, instead of tens of thousands of devices, you only wish to monitor 10 or 100 devices or what if you do not have hundreds of sites, but just a handful? Don't worry. At Honeywell we have the perfect solution for that, as well. Our ISS+ SCADA system is designed precisely for the online monitoring of small and medium-sized installations.

By using standard IT components, Honeywell can keep the maintenance and commissioning costs low without jeopardizing reliability and accuracy. Intuitive screens, designed to your specifications, make it easy for you to keep an eye on your installations – your window to your business.

The Deeper Meaning of Data

All these software systems have one thing in common – they generate a massive amount of data. A massive amount which humans now find very difficult to manage. So, how could the value of these data be monetized for you and your managers?

Honeywell has been working for years to develop software products for data analysis and artificial intelligence. One of our first products in this software suite is Honeywell Measurement IQ For Gas. Measurement IQ goes beyond simply interpreting the individual data from a device. It places the data it receives in context, relative to other devices such as gas chromatographs or pressure and temperature sensors, which are also part of your standard gas installation. This means that MIQ provides an extensive and up-to-date statement about the status of the entire measuring system – and does so 24/7 on both your PC and mobile device. By the end of this year, Measurement IQ will also support the standard set out in ISO 5168 for calculating measurement uncertainty.

This is just a small selection of software solutions available for gas measurement from Honeywell. Individual requirements demand individual solutions: Please contact the Honeywell Software Team – we have the perfect solution for you.

Max Gutberlet max.gutberlet@honeywell.comw

Chromatography Made Easy

Gas chromatography (GC) is the process of injecting sample gas into a carrier stream through a separation column, where the natural gas is separated into its constituents before traveling past the thermal conductivity detector, where these separated peaks get detected and integrated by the supporting electronics and firmware of the GC. Once integrated, the surface of the peaks is converted into a concentration using a response factor.

This response factor is determined beforehand by running calibration gas through the analyzer. Using the concentrations of the different components, the heating value, density, and Wobbe index can be determined according to the required standard (ISO 6976 or GPA 2172). With this energy value (MJ/m³ or BTU/scf) and the measured flow, the total energy flux through the pipeline can be calculated and used for custody transfer. It's as easy as 1-2-3.

The new EnCal 3000 proChain is Honeywell's latest innovative tool for doing exactly this. But, how does it differ from conventional tools and how does this benefit you?

Fewer Moving Parts Mean Fewer Movements of Your Service Engineers

The gas chromatography module (GCM) consists of three major parts: the injector, the separation column and the detector. Whereas commonly used GCs have two or more valves in order to inject, backflush, trap, and select different (sometimes even up to four!) columns, therefore making the column train very difficult to troubleshoot, the EnCal 3000 proChain only utilizes one valve for injection and backflushing. This makes the GC very easy to troubleshoot. In the unlikely event of a breakdown of the column, the module can be easily replaced by undoing just two screws, making the mean-time-to-repair (MTTR) very short. The modules, in part, can be sent back to our factory for repair. After being repaired, they can again be used as a spare part.

Low OPEX Due to the Lowest Helium Consumption in the World for GCs

Due to the simple set-up with only two columns, the helium flow in our GC is only 2 cc/min. But what does that mean? To put it into perspective, when using a 50-liter helium bottle at 200 barg, you could run the analyzer for a total of seven years. When using a switch-over system, as is usually done, you can run the system for up to fourteen years without worrying about changing carrier gas bottles. This saves not only on the helium itself but also on staff hours, transporta-

tion, and bottles. Over the lifetime of the EnCal 3000 proChain, it pays for itself through just the savings on the carrier gas.

Optional Local Display

The data of the GC is normally transferred to your system or flow computer via Modbus. However, some clients prefer to see the status of their GC on a display. For those users, we can supply the GC with an optional local display that shows the status of the analyzer, the analyzed components, and the calculated properties of the gas. Since the display is optional, you, as the client, are given the choice.

Optional Local Service Port

When something is wrong or you want to check the GC, it is possible to connect to the analyzer using a local USB port. This allows you to connect to the GC using your laptop, without needing to open the GC, enabling you to quickly check or troubleshoot the analyzer.

Conclusion

Our new GC will bring a huge decrease in OPEX due to the CAPEX already being cut in half. In French, “prochaine” means “next,” meaning that our new EnCal 3000 proChain is our next-generation gas chromatograph.

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

Significant Milestone for a Key Gas Market

SM-RI-X and TRZ2 Certified for Algeria

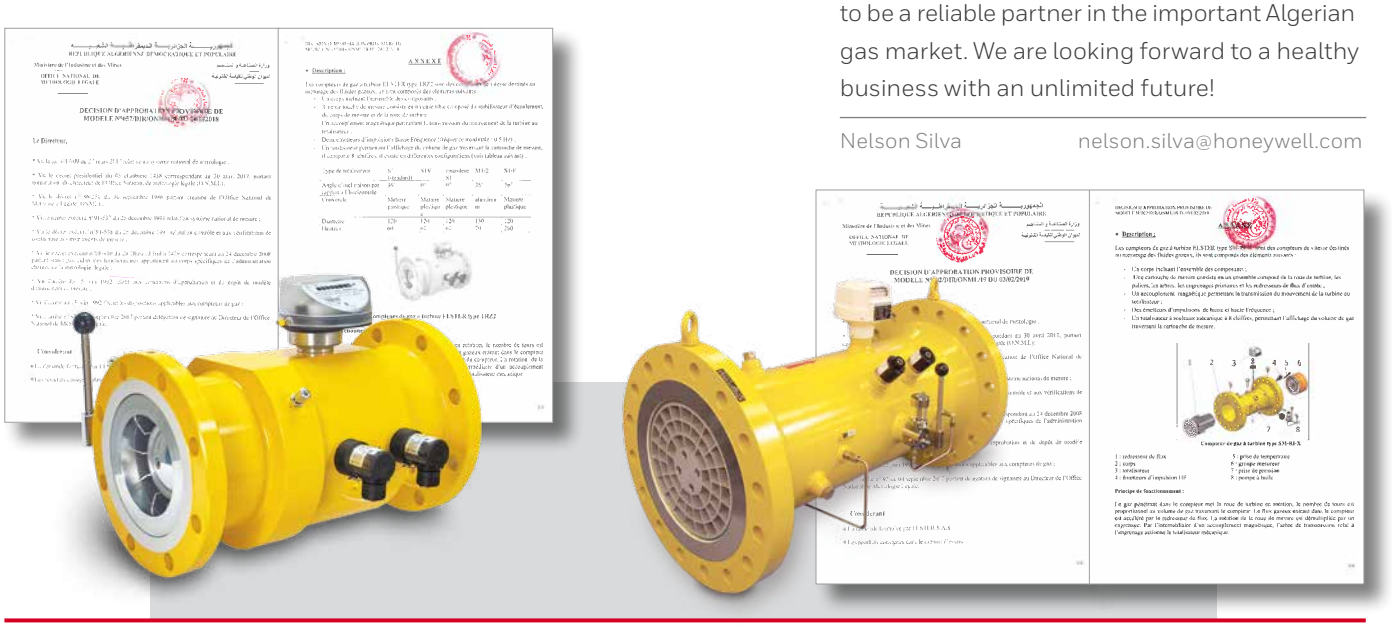
Algeria is the third biggest gas supplier to Europe, covering around 30% of the gas demand. Southern Europe especially relies on these imports: Portugal and Spain > 50%, Italy 30%. Besides being a large gas exporter, Algeria consumes a big portion of its own gas production.

Recently, participation in this market was limited due to a lack of certifications. In Summer 2018, the certification process for the Honeywell-Elster turbine meters TRZ2 and SM-RI-X was started, and now we are pleased to announce that we have the certificates on hand (see Fig. 1). The efforts to grow the Algerian market will continue. Further certification steps are in the pipeline. For the rotary displacement meter RABO and the volume converters of the EK series, the process will start immediately. And there is more to come...

All these steps have been taken in order for us to be a reliable partner in the important Algerian gas market. We are looking forward to a healthy business with an unlimited future!

Nelson Silva nelson.silva@honeywell.com

Fig. 1: Honeywell-Elster turbine meter certifications – TRZ2 and SM-RI-X



When you Need a Second Opinion ...

Sometimes a single meter isn't enough. However, when you need second reading, you don't have to add a second price tag. Honeywell's TwinSonic^plus provides two separate measurements in a single meter body: A primary, highly accurate multi-path measurement for custody transfer using the same technology as our leading Q.Sonic^plus ultrasonic meter and another measurement for verification and monitoring.

Two Become One

In a single body, the TwinSonic^plus combines highly accurate fiscal metering with a second, entirely independent measurement for verification. Each measurement has its own series 6 signal-processing unit with color graphic touch-screen display. This two-in-one redundant solution provides a more efficient, compact solution where a second reading is essential.

Uncorrected Results					Corrected Results		
MUT Flow (acfh)	Ref. Flow (acfh)	Velocity (ft/s)	Deviation (%)	2xStDev (%)	Deviation (%)		Verification Pt. (%)
276770	276207	104.34	0.20	0.05	0.00		
223895	223539	84.45	0.16	0.05	0.00		
154646	154305	58.29	0.22	0.06	0.00		
112018	111840	42.25	0.16	0.06	0.00		
71708	71636	27.06	0.10	0.08	0.00		
42694	42701	16.13	-0.02	0.08	0.00		
14414	14506	5.48	-0.63	0.10	0.00		
41833	41840	15.81					-0.02 Ver Pt1
223711	223712	84.51					0.00 Ver Pt2
41848	41840	15.81					0.02 Ver Pt1
223776	223712	84.51					0.03 Ver Pt2

MUT is the abbreviation for Meter Under Test,
Deviations and Stdev are shown in % of reference reading
Deviation [%] = (Qmeter - Qreference)/Qreference*100

Calibration results from TCC from August 31st, maximum deviation between both measurements 0.04%

Two meters in a single body also means a smaller, more flexible and cheaper solution for applications requiring a second measurement for ongoing monitoring and verification.

Lower Your CAPEX

The TwinSonic^plus removes the cost and complexity of separate meters. It offers a smaller footprint and eliminates the need for intermediate piping. Skids are smaller, installation is easier, and equipment and piping costs are lower. For a 12" ultrasonic meter (USM), we estimate our combined solution will save a typical user about 45% in capital expenses for each meter run when compared to buying and installing two meters in series.

Conclusion

Even more than the sum of its parts, the TwinSonic^plus delivers unmatched process visibility, accuracy, and reliability for your custody transfer applications. It also provides verification and redundancy for the primary measurement without installing two separate meters, as well as faster detection of liquid and dirt build-up with a unique, patented multi-path design.

To find out more about Honeywell's comprehensive metering portfolio, visit our website today – or why not download our free ebook.

Eric Bras eric.bras@honeywell.com

Tested and Approved!

More and more countries have to meet the increased requirements for the efficient use of energy. This leads to the use of state-of-the-art and high-precision measuring devices for the transported volume and gas quality.

In order to use the Honeywell-Elster gas transport measurement technology in the emerging CIS countries, we have begun to obtain the required metrological approvals.

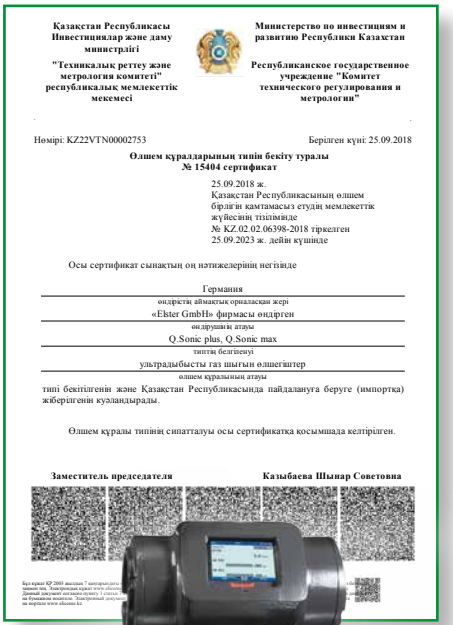
Most recently, we received the approvals for the first two countries, Uzbekistan and Kazakhstan.

Thus, the ultrasonic meters Q.Sonic^{plus} and Q.Sonic^{max}, the gas chromatograph EnCal 3000, and the flow computer enCore FC1 can be used immediately.

Further approvals have been requested – we will keep you up to date. Trust Honeywell-Elster's proven quality!

Bernhard Thomas bernhard.thomas@honeywell.com

Metrological approval for the Q.Sonic^{plus} and the Q.Sonic^{max}



Қазақстан Республикасы Инвестициялар және даму министрлігі
"Техникалық реттеу және метрология комитеті" республикалық мемлекеттік мекемесі

Министерство по инвестициям и развитию Республики Казахстан
Республиканское государственное учреждение "Комитет технического регулирования и метрологии"

Нөмірі: KZ22VTN00002753 Берілген күні: 25.09.2018

Өлшем құралдарының типін бекіту туралы
№ 15404 сертификат

25.09.2018 ж.
Қазақстан Республикасының өлшем бірлігін қамтамасыз етудің мемлекеттік жүйесінің тізілімінде
№ KZ.02.02.06398-2018 тіркелген
25.09.2023 ж. дейін күшінде

Осы сертификат сынақтың оң нәтижелерінің негізінде

Германия
өндірістің айнақтық орналасқан жері
«Elster GmbH» фирмасы өндірген
өндірушінің атауы
Q.Sonic plus, Q.Sonic max
типтің белгіленуі
ультрадыбысты газ шығын өлшегіштер
өлшем құралының атауы
типі бекітілгенін және Қазақстан Республикасында пайдалануға беруге (импортқа) жіберілгенін куәландырады.

Өлшем құралы типінің сипаттамалы осы сертификатқа қосымшада келтірілген.

Заместитель председателя Қазыбаева Шынар Советовна

Metrological approval for the EnCal 3000

СИСТЕМА ОБЕСПЕЧЕНИЯ ЕДИНСТВА ИЗМЕРЕНИЙ РЕСПУБЛИКИ УЗБЕКИСТАН

УЗБЕКСКОЕ АГЕНТСТВО СТАНДАРТИЗАЦИИ, МЕТРОЛОГИИ И СЕРТИФИКАЦИИ (АГЕНТСТВО "УЗСТАНДАРТ")

Государственное предприятие «Узбекский национальный институт метрологии»

СЕРТИФИКАТ O'T 0000337

утверждения типа средств измерений
TYPE APPROVAL CERTIFICATE OF MEASURING INSTRUMENTS

№ 02.7048

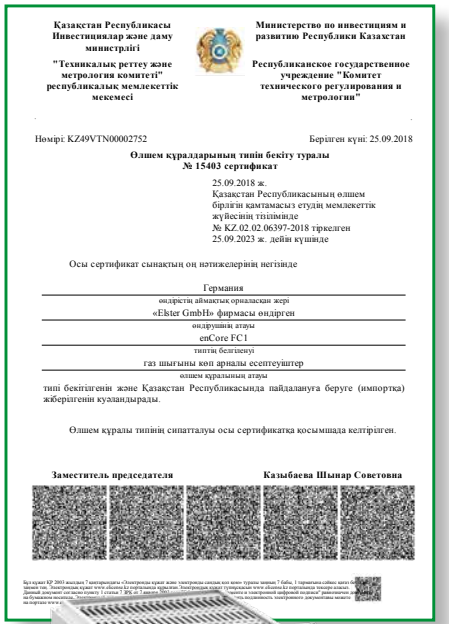
Выдан «28» февраля 20 19 г.
Действителен до: «28» февраля 20 24 г.

Настоящий сертификат удостоверяет, что на основании положительных результатов испытаний утвержден тип Портативных газовых хроматографов
типа EnCal 3000
изготовленных «Elster GmbH», Германия

Тип средств измерений соответствует ГОСТ 26703.2-93
внесён в Государственный Реестр средств измерений под № 02.3748-19
и допущен к применению в Республике Узбекистан.
Описание типа средств измерений приведено в приложении к настоящему сертификату.
Действие настоящего сертификата распространяется на Портативные газовые хроматографы типа EnCal 3000

Руководитель Л. Сандорихин
М.П.
Действие сертификата продлён до «» 20 г.
Руководитель

Metrological approval for the FC1



Қазақстан Республикасы Инвестициялар және даму министрлігі
"Техникалық реттеу және метрология комитеті" республикалық мемлекеттік мекемесі

Министерство по инвестициям и развитию Республики Казахстан
Республиканское государственное учреждение "Комитет технического регулирования и метрологии"

Нөмірі: KZ49VTN00002752 Берілген күні: 25.09.2018

Өлшем құралдарының типін бекіту туралы
№ 15403 сертификат

25.09.2018 ж.
Қазақстан Республикасының өлшем бірлігін қамтамасыз етудің мемлекеттік жүйесінің тізілімінде
№ KZ.02.02.06397-2018 тіркелген
25.09.2023 ж. дейін күшінде

Осы сертификат сынақтың оң нәтижелерінің негізінде

Германия
өндірістің айнақтық орналасқан жері
«Elster GmbH» фирмасы өндірген
өндірушінің атауы
enCore FC1
типтің белгіленуі
газ шығыны көп арналы есептеуіштер
өлшем құралының атауы
типі бекітілгенін және Қазақстан Республикасында пайдалануға беруге (импортқа) жіберілгенін куәландырады.

Өлшем құралы типінің сипаттамалы осы сертификатқа қосымшада келтірілген.

Заместитель председателя Қазыбаева Шынар Советовна

COMPLETE Device Configuration Using a SINGLE Interface

At the start of 2018, new modems were launched in our volume conversion devices and data loggers. In addition to the 2G network (GSM-CSD/GPRS), these also support the 3G standard (UMTS).

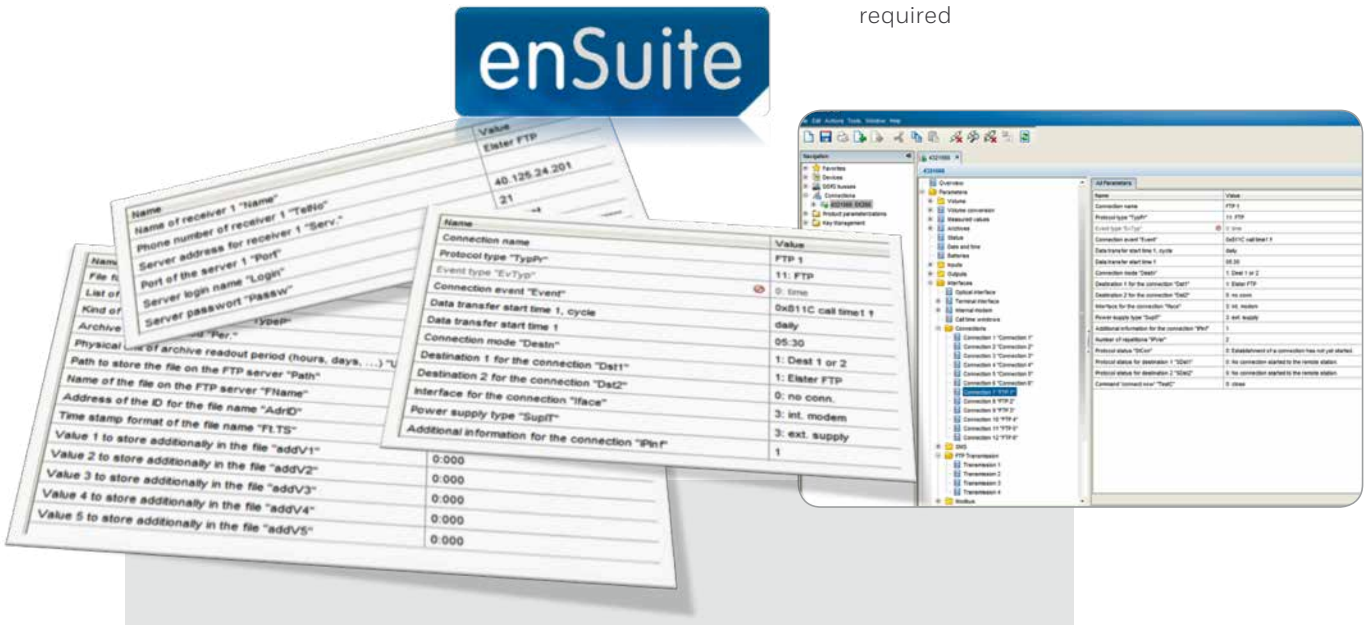
New device firmware was required for using the new modem modules. Modem functions have now also been implemented in these new versions which previously differed depending on the modem ordered.

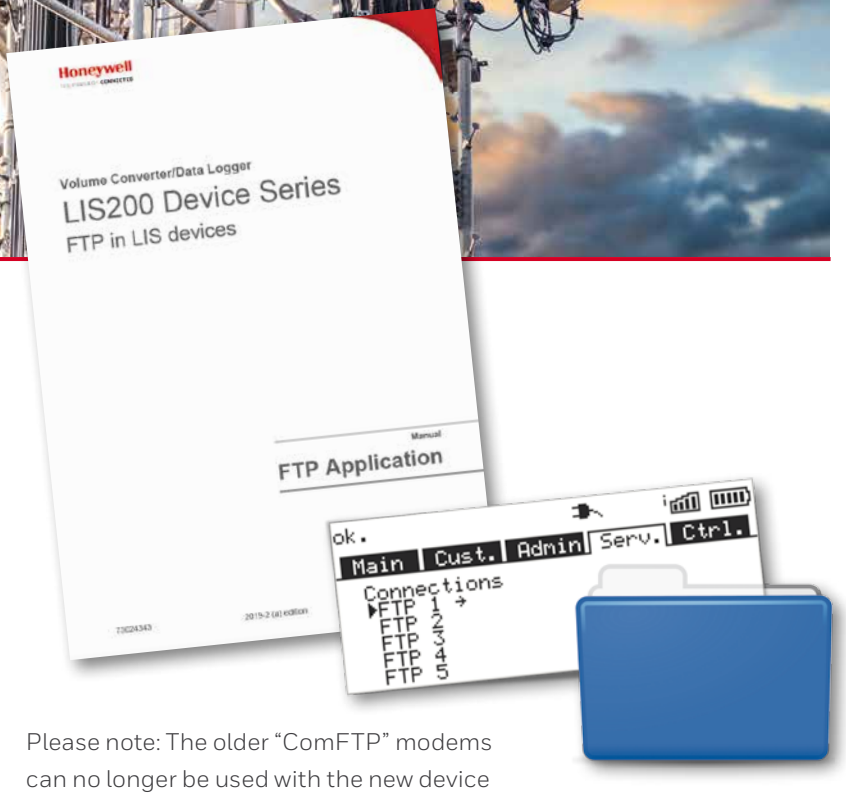
Starting From Device Versions:

- DL230 V1.10 and
- EK280 V2.50 in conjunction with TCPServ or ECM-2G/3G modems and the internal Ethernet card, the familiar “ComFTP” modem application has been included in the device firmware. This means that the configuration of FTP data transfer no longer takes place in the modem itself, but completely in the device.

This Yields the Following Benefits for You:

- Complete configuration of the device and modem function using the optical read head and the enSuite configuration and analysis software
- No separate modem configuration cable required





- No distinction in the purchase order between TCPserv and ComFTP mode; both functions can be used in the device
- The modem now only provides network access, all functions are controlled by the terminal device
- NTP time synchronization possible, even without configuring an FTP transfer

What Other Benefits Does this Change Mean for You?

In your purchase order, you no longer have to choose between PULL and PUSH mode, only between the 2G or 3G network standard*.

The configuration of the new FTP function is described in an "FTP application manual", which you can download from our Internet site (Docuthek).

* GSM/CSD services are not supported in the 3G network in Germany. The 3G modem is also compatible with the 2G standard.

Please note: The older "ComFTP" modems can no longer be used with the new device versions (see above).

Please contact our Support Team if you have any detailed technical questions or require technical advice. Contact details:
ElsterSupport@honeywell.com;
Tel.: +49 (0) 6134/605-123

Training courses are also available at Honeywell-Elster – if you are interested, please do not hesitate to contact us.

Marc Solms ElsterSupport@honeywell.com

Honeywell Supplies Smart Gas Meters for the Luxembourg Gas Market

The decision to install smart meters for electricity and gas in Luxembourg is based on a law dating from August 2015, which in turn is based on the European Directive on Energy Efficiency (2012/27/EU) and an amendment to the Electricity and Gas Market Regulations enacted in 2012.

The Luxembourg grid operators prepared joint specifications between 2012 and 2013 and commissioned a consortium in 2014 to supply a common, national smart meter platform operated by the economic interest group (Groupement d'intérêt économique, GIE) Luxmetering. Since 2016, a total of 190,000 electricity and 30,000 wired and wireless gas meters have been installed and read on a daily basis. Honeywell was selected to supply gas meters with Absolute ENCODER (AE) index technology.

The Luxembourg grid operators decided to use the Open Metering System (OMS) 4.0.2 protocol as a basis for the Luxmetering specification for communication between electricity and gas meters. Gas and electricity meters communicate with each other using either the wireless M-Bus (868 MHz) or wired M-Bus, both complying with OMS 4.0.2 and based on EN 13757. The electricity meter communicates via Power Line Communication (PLC) with a data concentrator, which transfers the data using 2G/3G/4G GPRS/LTE to the head-end system (HES), or it communicates directly with the HES using 2G/4G.

The main requirements for the communication interface between gas and electricity meters are robust bidirectional communication, Mode 7 encryption and remote firmware update. These were specially developed by Honeywell for the Luxmetering project to supplement the OMS 4.0.2 Standard specifications. Honeywell was selected by Luxmetering as the main supplier of wired OMS 4.0.2 gas meters.

With wired connections, the electricity meter polls the gas meter every quarter of an hour and receives the current meter reading at that time, as well as any event and alarm messages which are currently active. Only the hourly values are saved in the electricity meter and forwarded to the reading system (head-end system, HES) every 15 minutes, together with the electricity values. The quarter-hourly readings from the gas meter are also made available by the electricity meter using the wired P1 customer interface (as per the Dutch Smart Meter Requirements (DSMR) standard). This means that end customers can view their gas, water, and district heating consumption in addition to their electricity consumption using an in-home display.

The protective measures to ensure integrity, confidentiality, and authenticity during the data exchange between the communication partners originate from a collaboration between the Security and Trust (SnT) Department at the University of Luxembourg and an ethical hacker company. They feature the complete encryption of the data between all system components, as well as bidirectional communication and remote firmware updating for all components. This configuration provides the grid operators with good security of investment for these field components over their entire service life.

BK-G4 with Absolute ENCODER index AE5 and wired M-Bus communication module in accordance with the Luxmetering specification

The success of a smart metering solution is heavily dependent on careful product development and extensive testing, as well as a high-quality production environment. This is a prerequisite for successfully satisfying the requirements for data security, service life, cost efficiency, traceability, and reliable lead times for the devices.

From the very beginning, Honeywell worked very closely with Luxmetering during the development phase and the subsequent testing and logistics phases. Reliable communication and consistent work using generally accepted project management methods ensured that the project was completed efficiently.

The project teams, consisting of Honeywell, another gas meter manufacturer, the manufacturers of electricity meters, and Luxmetering, discussed requirements in constructive talks, enabling them to produce a joint, binding solution. The interoperability of the new components from various manufacturers was tested exhaustively in several project phases and was ultimately successfully ensured.

After the Honeywell gas meters had also passed the Luxmetering type examinations, they went into series production. The new meters were first installed at the premises of Luxembourg end customers in the third quarter of 2016.

After a development period of 18 months, the delivery of G4, G6, G16, G25 and G40 gas meters with Absolute ENCODER index AE5 by Honeywell to the Luxembourg gas grid operators marks the start of the large-scale roll-out. The roll-out phase will continue until the end of 2020.

The Absolute ENCODER is an index for diaphragm gas meters which records and displays gas consumption in exactly the same way as a mechanical roller index. The position of the index rollers is scanned opto-electronically and the absolute meter reading is transmitted via an interface and standardized communications protocols. The operating energy for the diaphragm meter is derived from the gas pressure.

Electrical power is required only for reading the Absolute ENCODER and is made available by the M-Bus master in the case of cable-based data transfer. The M-Bus master is integrated into the electricity meter. For this application, no batteries are required.

The Luxmetering project is a very successful example of the use of Honeywell's Absolute ENCODER index technology: While the Absolute ENCODER index is suitable for universal use, customer-, project-, or country-specific requirements can be implemented efficiently in the communication module (with short development times and low costs for obtaining the required approvals).

The Luxmetering project uses the new Absolute ENCODER AE5 generation, which was able to demonstrate its mass suitability with great success. The AE5 index differs from its predecessor, the AE3, in the fact that the AE5 scans all eight rollers, making the resolution 10 times higher than on the AE3. This means that, for example in Germany, BK-G10/G16 and BK-G100 can also be connected to a peak-load display device (HBA). Furthermore, the AE5 operates with a reduced supply voltage of just 3.3 V. Therefore, conventional batteries without transformers can be used if wireless modules are fitted. This increases service life and reduces costs.

About Luxmetering

Luxmetering is an economic interest group which was founded in 2012 and comprises all gas and electricity grid operators in Luxembourg.

The company has been commissioned to develop and operate the national smart meter platform for Luxembourg and to coordinate the smart meter mass roll-out for electricity, gas, water, and district heating meters.

Together with the grid operators, Luxmetering is responsible for the introduction of a total of more than 500,000 smart meters.

Paul Hoffmann paul.hoffmann@luxmetering.lu
Klaus Landwehr klaus.landwehr@honeywell.com
Dr. Daniela Lücke-Janssen
daniela.luecke-janssen@honeywell.com

Stay on the Safe Side With the HON5020

As with every new development, Honeywell Gas Technologies tested the gas pressure regulator HON5020 with integrated SSV exhaustively before it was made available for sale.

In addition to carrying out a large number of internal test cycles, in order to, for example, test and improve accuracy in various load conditions, HGT has made a name for itself subjecting new developments to endurance field tests. The aim of this is to ensure the greatest possible reliability in real-life, changing operating conditions.

These endurance tests are planned and completed in close cooperation with specially selected national and international customers. For the German-speaking world, EWF Energie Waldeck-Frankenberg GmbH volunteered to conduct these tests in one of its gas pressure regulating stations.

The installed gas pressure regulator was replaced with the new HON5020 with integrated safety shut-off valve (SSV). This was a straightforward process due to its standard design length.

Since the Twiste station operated by EWF features remote monitoring, the HON5020 was also fitted with an SSV position indicator for remote monitoring. The basic requirement for an objective evaluation of the device's performance, of course, is permanent monitoring of the pressure, flow rate, and temperature. These requirements were satisfied at the Twiste station – making it the perfect venue for the trial run. The HON5020 is activated by a HON630 series pilot. This series is used in many other gas pressure regulating applications.

Customer Feedback

"We were delighted to volunteer to subject Honeywell's new device to intensive testing and provide feedback. The Twiste station is remotely monitored, and the inlet and outlet pressures and flow rate are logged permanently. The Twiste system features constant changes in load demand. During the winter months, for example, we run at full load while during the remainder of the year, demand may fall to the low-load range. The station supplies nine villages with natural gas, with over 3,400 mains connections. Throughout the period of testing, we were unable to identify any discrepancies from the specifications and were highly satisfied with how it functioned."

Rainer Groß
Gas Mains Operation Department Manager
Energie Waldeck-Frankenberg GmbH

Sascha Bluhme sascha.bluhme@honeywell.com

Mobile Solutions & Smart Data Applications Were a Major Topic

Visitors from more than 30 countries attended the Honeywell Channel Partner Conference in New Delhi, India

Once again, more than 200 channel partners from Asia attended our traditional start to the year in New Delhi, India, at the end of February. Honeywell presented the entire product portfolio of Honeywell Process Solutions – from gas meters and software solutions, new burner technologies and automation solutions to the latest trends in cyber and physical security.

Like last year, the main theme of the conference was "Connected." However, as far as Honeywell is concerned, this subject goes well beyond simply connecting components and incorporates joining processes (in other words, connecting data from various processes to improve the overall results) and also people, a particularly important aspect of this concept.

After all, the best process improvement and the best measuring instruments are useless if information and results are not available to a person at the time when they are relevant to him or her. This meant that mobile solutions and smart data applications were a major topic at this event.

At the request of many channel partners, this year the emphasis was on being "hands on," in other words, less PowerPoint presentations and more actual handling and testing. Thus, the Knowledge Center, which was almost twice the size of last year, was also the center of activities – often well beyond the official opening hours.

Just like the Channel Partner Conferences in June in the United States and in September in Europe, this CPC was extremely important to Honeywell as it gave us an opportunity to obtain feedback straight from our partners and, in particular, to study national peculiarities on the spot.

Of course, many of our channel partners also took the opportunity of being in India to do a little sightseeing of their own – on Thursday, the day after the actual Channel Partner Conference, the Taj Mahal was awash with Honeywell partners.

We would like to take this opportunity to thank all our partners who travelled long distances to New Delhi and look forward to seeing lots of our American channel partners in June in Dallas, Texas, and our channel partners from Europe and the Middle East in September in Amsterdam.

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What Does This Actually Mean?

The European Commission has enacted a range of Directives to counter the rising pollution caused by the ever-increasing volume of electrical waste and the use of hazardous materials in electrical and electronic equipment. These include the RoHS and WEEE Directives.

Electrical and electronic equipment for use in space, among others, is not covered by these Directives. At first glance, this could cause one to smile because the likelihood of this equipment being placed in normal household waste at the end of their service life is low anyway. It would also be difficult to return this end-of-life equipment free of charge and place it in a recycling system at a reasonable distance away. But actually, there is even a technical reason for this exception. As a matter of fact, lead prevents the recrystallization of alloys (for example, soldering tin) since it decelerates whisker formation and its growth. Whiskers are needle-shaped single crystals which form over the years, can become several millimeters in length, and can cause short-circuits in electrical and electronic equipment. If the use of lead, for example, in soldered joints, in electrical and electronic equipment for use in space were to be banned, this equipment would not achieve the long service life that it requires. And providing service to replace defective equipment in space is unfortunately still a little complicated and expensive.

What Does WEEE Mean?

The European Commission has enacted the WEEE Directive to prevent or reduce the negative environmental effects caused by end-of-life electrical and electronic equipment. WEEE stands for “Waste Electrical and Electronic Equipment” (or e-waste). The aim of this European Directive is to provide a statutory framework to achieve the sustainable production and sustainable use of electrical and electronic equipment by re-use, recycling, and other forms of the recovery of end-of-life electrical and electronic equipment. The intention is to reduce the share of this equipment in household waste and to collect raw materials properly for recovery.

The first version of the WEEE Directive (2002/96/EC, “WEEE 1”) was published in January 2003. The Member States of the European Union had to transpose the Directive into national law by August 13, 2004 and establish national take-back systems for waste electrical and electronic equipment to enable end users to return it free of charge. Manufacturers had to pay the costs for the collection, treatment, recovery, and environmentally sound disposal of waste electrical and electronic equipment on the basis of the “polluter pays” principle. Starting from December 2006, “a rate of separate collection of at least 4 kilograms on average per inhabitant per year of WEEE from private households” was to be achieved. Equipment for military purposes is not covered by the scope of “WEEE 1.”

In 2008, the “WEEE 1” Directive underwent a scheduled review and adjustment, in part due to the significantly increased volume of electrical waste and the increasing EU-wide mail order trade in electrical and electronic equipment. The second version of the WEEE Directive (2012/19/EU, “WEEE 2”), which is still current, then came into force on August 13, 2004 for transposition into the national law of all EU Member States by February 14, 2014. At that time, the previous Directive 2002/96/EC (”WEEE 1”) was revoked. The “WEEE 2” Directive provided for a transitional period from

Equipment categories valid until August 14, 2018 ("WEEE 1" and the transitional period of "WEEE 2")

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment and photovoltaic panels
5. Lighting equipment
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
8. Medical devices (with the exception of all implanted and infected products)
9. Monitoring and control instruments
10. Automatic dispensers

The following exceptions apply under "WEEE 1", Article 2 (3):

- Devices for military purposes

Equipment categories valid after August 14, 2018 (open scope of "WEEE 2")

1. Temperature exchange equipment
2. Screens, monitors, and equipment containing screens having a surface greater than 100 cm^2
3. Lamps
4. Large equipment (any external dimension more than 50 cm)
5. Small equipment (no external dimension more than 50 cm)
6. Small IT and telecommunication equipment (no external dimension more than 50 cm)

The following exceptions apply under "WEEE 2", Article 2 (3) and (4) (selection):

- Devices for military purposes
- Devices which are part of another device which is not covered by the scope of the "WEEE 2" Directive
- Light bulbs
- Equipment designed to be sent into space
- Large-scale stationary industrial tools
- Large-scale fixed installations
- Means of transport for persons or goods
- Non-road mobile machinery made available exclusively for professional use
- Equipment designed for the purposes of research and development
- Medical devices and in vitro diagnostic medical devices, where such devices are expected to be infective prior to end of life, and active implantable medical devices

February 14, 2014 to August 14, 2018. The equipment categories set out in the previous "WEEE 1" Directive remained valid until the end of this transitional period. In addition, photovoltaic panels were included in the scope of the Directive. Since the end of the transitional period on August 14, 2018, a so-called open scope has applied under "WEEE 2," in other words, all electrical and electronic equipment is covered by the scope of this European Directive, with the exception of the items listed in Article 2 (3) and (4) (see table on the left). This open scope also covers Honeywell products for gas distribution.

Who is the Producer Under the "WEEE 2" Directive?

The term 'producer' has a different meaning in the WEEE Directive than is the case in legal metrology, for example. In summary, a producer under the "WEEE 2" Directive (see Article 3 (1) (f)) is any legal or natural person who:

1. "is established in a Member State and manufactures EEE under his own name or trademark, or has EEE designed or manufactured and markets it under his name or trademark within the territory of that Member State,"

2. "is established in a Member State and places on the market of that Member State, on a professional basis, EEE from a third country or from another Member State" (in other words, sells EEE on a commercial basis for monetary reward or places it on the market of the Member State free of charge for sale, consumption or use), or

3. “sells EEE by means of distance communication directly to private households or to users other than private households in a Member State, and is established in another Member State or in a third country.”

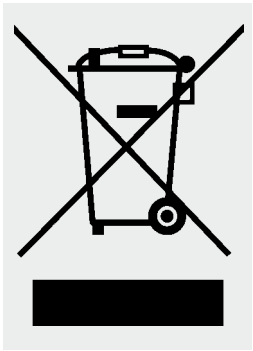
The first two cases apply to the Honeywell product portfolio for gas distribution:

1. The first case describes the classic situation that a subsidiary of Honeywell-Elster is established in an EU Member State and places Honeywell products for gas distribution on the market in that country. In this case, the Honeywell-Elster subsidiary is obliged to meet the statutory requirements of the country relating to WEEE.

2. The second case describes the situation that a subsidiary of Honeywell-Elster is not established in an EU Member State but where a sales partner or gas supplier established in the Member State imports the products from Honeywell. In this case, the sales partner or gas supply company is obliged to meet the statutory requirements of the country relating to WEEE.

Meeting the statutory requirements of the country relating to WEEE generally means registering with the national WEEE body and submitting regular reports to it providing details of the weight of electrical equipment which has been placed on the market. In addition, other national requirements must be satisfied (for example, in Germany, the WEEE registration number must be quoted in written transaction documents). Furthermore, the products covered by the “WEEE 2” Directive must be marked with the WEEE symbol (a crossed-out wheeled bin). The WEEE symbol indicates the necessity to collect and dispose of this electrical and electronic equipment separately.

The transposition of the “WEEE 2” Directive into national law and the registration and reporting systems of the national WEEE bodies differ from country to country. EU-wide registration is not possible.



The WEEE symbol: the crossed-out wheeled bin set out in the European WEEE Directive (2012/19/EU, “WEEE 2”)

Which Honeywell Gas Distribution Products Are Affected?

All the Honeywell gas distribution products covered by the “WEEE 2” Directive will be marked with the WEEE symbol, unless they already bear the symbol. These include the following:

- Diaphragm gas meters with an Absolute ENCODER index
- Diaphragm gas meters with an electronic index (themis®)
- Communication modules for the Absolute ENCODER or for the electronic index
- Pulse transmitter modules (IN-Z)
- Volume conversion devices, data loggers, and flow computers
- Gas chromatographs (EnCal 3000) and gas quality analyzers (GasLab Q2)
- Rotary gas meters and turbine gas meters
- Ultrasonic meters
- Regulators with electronic position indicator for safety shut-off valves (SSV)

What Does WEEE Mean for Our Customers?

There is no general answer to this question since the EU Member States have transposed the WEEE Directive into national law in different ways.

The important thing to remember is that all end-of-life products marked with the WEEE symbol must be processed by an individual or collective take-back and disposal system. The customers should ask their Honeywell sales partner about the precise way in which this process works.

If the customer is the one who imports a Honeywell product bearing the WEEE symbol into the country because there is no established Honeywell-Elster subsidiary in the country, the customer is also obliged by law to register with the national WEEE body and to comply with the reporting system and other requirements it imposes.

If there is an established Honeywell-Elster subsidiary in the country, this established subsidiary will take care of the registration and reporting duties, as well as the other requirements in the country – unless this has already been done.

If you have any questions about WEEE, please do not hesitate to contact your Honeywell sales partner or myself.

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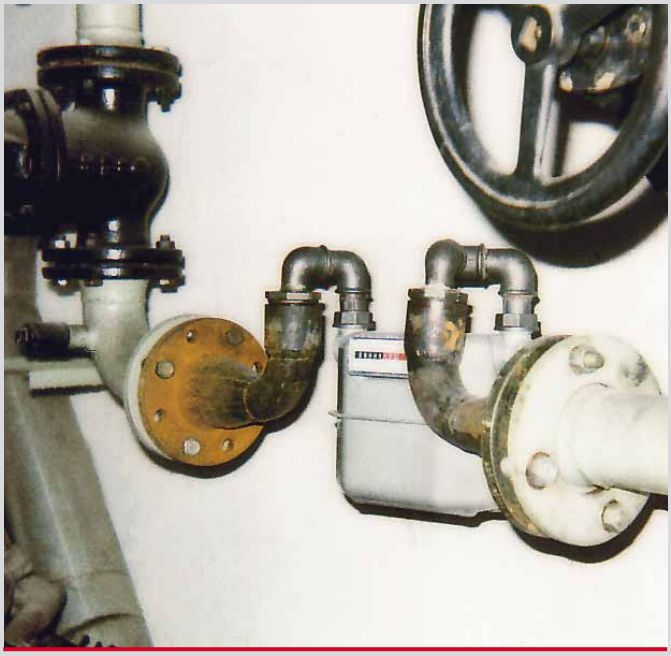
Fun From the Gas World

Thank you very much for the imaginative photos on the topic of gas! You are welcome to send us your amusing pictures of gas appliances: gudrun.biedermann@honeywell.com



Discovered by Mr. Uhlig: from big to small...

... as well as the connection with lead pipes.

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