PROFILES
GAS CUSTOMER MAGAZINE

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Future-proofed gas meters

Honeywell

COMING HOME

Around 20 years ago, after studying, I applied for a job as a firmware developer at what was then Flow-Comp Systemtechnik GmbH. The familiar application process with the claim of only employing somebody who would be a perfect fit for the team impressed me at the time. After an initial chat with Development Manager Dr. Ulrich George, there was a larger meeting involving all the developers in the team. Each of them was able to pose questions to their potential new colleague. This was then followed by democratic vote involving all of them. If the majority was in favor of the candidate, he or she passed on to the next stage – and the rest is history.

I immediately felt at home in the 'world of gas' and over the years, I have had lots of different experiences, met lots of people and been involved in lots of changes. The relatively 'small' owner-managed Flow-Comp Systemtechnik GmbH was initially taken over by Elster and the company experienced constant change under a very wide range of investors until the takeover by the US Honeywell Group in 2016.

There is nothing as constant as change. In fact, the entire 'world of gas' changed. We must all be open to change and adapt to the world around us. And that goes for our products, gas networks, jobs, etc. That is the only way to be ready for the future.

Over the years, I have personally taken on lots of new challenges and after several years, I initially moved from Development to Product Management and then on to Sales. After this, I worked in Northern Europe and was then appointed to the role of Sales Manager in Southern Europe which enabled me to familiarize myself very closely with the gas business in various countries. Now my career is taking me back to Germany. I'm looking forward to my new role as Sales Director DACH immensely. Both we, the manufacturer, and you, the gas grid operators, have exciting times ahead.

I managed to see lots of familiar faces at the GAT and I also made a few new contacts. I'm certain that we will talk again soon and I look forward to any type of contact you wish to make. As far as my career is concerned, I have come home.

Michael Pellmann
Sales Director DACH

WHAT'S INSIDE

VOLUME CORRECTORS USING ADVANCED WIRELESS TELEMETRY TECHNOLOGY IN GAS MEASUREMENT APPLICATIONS

North American Natural Gas Transportation and Local Distribution Companies using electronic volume correctors with integrated CloudLink 5G Technology will see significant benefits including enhanced operations, improved efficiency, and better management of critical infrastructure.

How 5G technology improves current electronic volume correction device operation

The Honeywell Mercury EC350 with integrated CloudLink 5G modem is the upcoming release that has been developed to provide a lower power, low-cost modem using the latest telemetry and wireless communication available for gas measurement applications. It is estimated that lower operational and maintenance costs will result in significant cost savings that will directly affect their bottom line. Power saved from the integrated rechargeable battery used for the 5G modem, along with fewer truck rolls can help to quantify those values for each customer and application.

The CloudLink 5G modem is also compatible with other Mercury devices and is already being used in several Elster devices as well. This will allow the opportunity for reduced inventory overhead and service costs due to fewer battery replacement options required. For the installed base of legacy Mercury equipment, an upgrade path has been developed, which includes upgrade kits to help customers transition from CloudLink 4G and in some cases, CloudLink 2G technology. This is critical in helping companies protect their investment in Honeywell products

By adopting 5G technology, pipeline distribution companies and gas transportation companies can transform their operations, enhance safety, reduce operational costs, and ensure the efficient and reliable distribution of resources.

Features and Benefits

Some of the features and benefits of the CloudLink 5G integrated EC350 are:

- Provides a battery optimized, low-power, low-cost Cat M1/NB IoT cellular radio platform with 5G capability, integrated with EC350, ERX350, MiWi350;
- Delivers investment protection via upgrade kits for legacy products, CNI5, and other future Mercury products
- Takes advantage of newly released low power communication modes such as eDRX and PSM
- Supports MasterLink and PowerSpring software
- Cyber Security Features:
  - Encrypted Sign-on with the ability to enable or disable this function
  - Modem network connection status events
  - EVC connection port on the 5G modem
  - TLS Enabled/Disabled
  - Secure manual Firmware upgrades, as well as, Firmware Over the Air (FOTA) upgrades

Request information on how you can incorporate the Honeywell EC350 EVC with the CloudLink 5G modem into your device management system. Transform your operations, enhance safety, reduce operational costs, and ensure efficient and reliable natural gas measurement. Choose Honeywell!

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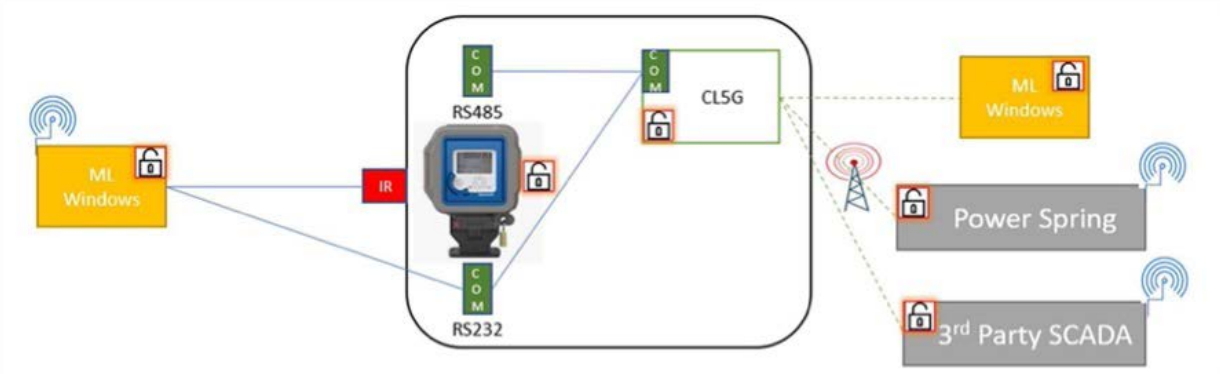
DEPLOYMENT SCENARIOS:

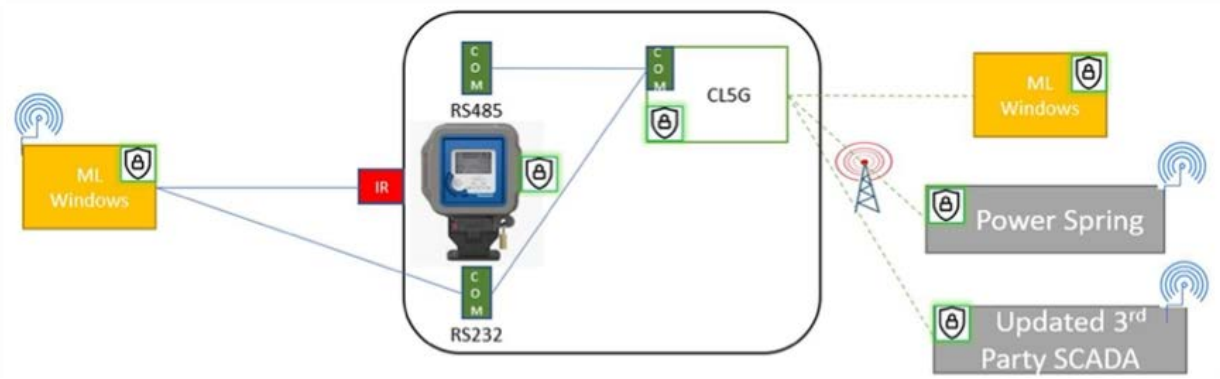
1. Example of Security Disabled Situation:

- In this security-disabled scenario, the CL5G Modem works in a transparent mode just like the CL100 or CL110 Modem.
- End to End data communication from Master Link -> EVC -> CL5G -> PowerSpring / SCADA is possible and its insecure.
- Complex Password (without hashing the password) is supported.
- The existing user base can just replace the CL100 / CL110 with CL5G Modem in there EC350 / MIWI350 and use as-is.
- No changes in SCADA are required in non-secure mode.



2. Example of Security Enabled Situation:

- Secure Enabled Scenario Supports
  - Complex Password and Hashing of Password.
  - TLS Encrypted Communication.
  - Secure Boot



NEW CYBERSECURITY ENHANCED FIRMWARE

New Cybersecurity enhanced firmware include features for Honeywell Mercury Gas Products to help customers comply with recently revised Transportation Security Administration (TSA) directive that affects utility and natural gas pipeline industries in the U.S.

In order to sustain strong cybersecurity measures and remain compliant with TSA, strong recommendations, customers have had to pivot find ways to ensure their modems, software, and systems are less vulnerable to cyber- or ransomware attacks. TSA Regulation Security Directive (SD) Pipeline-2021-02 has proven to be somewhat of a moving target for both customers and device manufacturers.

What does compliance with the TSA Cyber Directive include?

While it is true that compliance with the Transportation Security Administration (TSA) Cyber Directive is crucial for ensuring the security and integrity of critical gas transportation and pipeline systems, the way that TSA has outlined the guidelines and requirements for compliance are not clear and vary depending on the company. North American gas transportation companies where vulnerability to cyber-attacks could negatively impact public safety, the environment, or financial security are the main subjects of interest for TSA Cyber Directive. Initially, the TSA issued stringent guidelines with tight timelines that many companies struggled to comply with. In their most recent revision, the requirements provide more of a framework that make compliance more easily achievable.

Some ways that companies can achieve compliance are through frequent communications with the TSA and to ensure they can account for the following:

- Implement a comprehensive training program for employees and contractors
- Conduct regular vulnerability assessments and penetration testing on critical systems to identify and mitigate potential weaknesses
- Strengthen access controls through implementing multi-factor authentication (MFA) for critical systems and limiting access to authorized personnel only and regular review and update of user access privileges.
- Develop and maintain a robust incident response plan indicating the steps to be taken in the event of a cyber incident.
- Maintain an up-to-date inventory of all digital assets and systems. This includes both hardware and software components, as well as their configurations
- Establish a formal patch management process to promptly address and apply security patches and updates to all systems and software covering both IT and OT systems.
- Segment networks to isolate critical systems from less critical ones to help containment and mitigate the impact of cyberattacks.
- Implement encryption for data in transit and at rest, particularly for sensitive and critical information and ensure encryption protocols meet industry standards.
- Deploy robust network and system monitoring solutions to detect and alert on suspicious activities and maintain detailed logs of all system and network events for auditing and analysis.
- Assess and enhance the cybersecurity of your supply chain by working with suppliers and vendors to ensure they also meet the TSA Cyber Directive requirements.
- Stay informed about evolving cybersecurity regulations and ensure ongoing compliance with relevant industry standards and government regulations.
- Conduct regular cybersecurity audits and assessments to evaluate your compliance status and identify areas for improvement.
- Collaborate with industry partners and share information about cyber threats and vulnerabilities to enhance collective cybersecurity efforts.

- Consider obtaining cyber insurance to help mitigate the financial impact of a cyber incident.
- Establish a culture of continual improvement in cybersecurity by learning from past incidents and staying up to date with the latest cybersecurity developments and threats.

What Honeywell is doing to help companies comply

As one of the largest manufacturers of gas measurement products in North America, Honeywell has accepted the challenge to help customers meet the demands, requirements, and/or recommendations of the TSA Cyber Directive. The Mercury EC350 and MiWi350, along with integrated modems and supporting software assist with meeting some of the recommendations through recently released enhanced cyber security features including complex passwords, secure boot, bulk password update and TLS encryption. By providing features that help customers achieve TSA regulatory compliance within measurement devices, this cost-effective approach could result in significant cost savings, in addition to greater protection against exploitation, damage, theft and/or loss.

Cybersecurity is an ongoing process, and compliance with the TSA Cyber Directive requires dedication and vigilance. Regularly assess and update your cybersecurity measures to adapt to evolving threats and maintain a high level of security within the transportation sector.

Stay informed about evolving cybersecurity regulations and ensure ongoing compliance with relevant industry standards and government regulations. Empower your cybersecurity journey with Honeywell gas products!

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Credit: : https://www.dragos.com/resource/infographic-tsa-security-directive-pipeline-2021-02c-sd02c/

NAVIGATION THE SEAS OF SUSTAINABILITY

Supporting the rise of rise of Methanol as a marine fuel with Honeywell's Methanol pumping skid

The Maritime industry is undergoing a transformation to be more sustainable in how it powers its vessels. The switch from traditional fossil fuels to renewable alternatives is not just an environmentally responsible choice but can also be economically advantageous. With the growing interest and investments in the hydrogen industry, ammonia as a fuel is one of the candidates for the maritime industry, but besides ammonia methanol stands out as a promising sustainable fuel for marine propulsion. Honeywell's innovative methanol pump skid is supporting this development and will help pave the way to a greener future on the high seas.

Urgent need for change

For decades, the marine industry has relied on fossil fuels, primarily marine diesel oil. These fuels are known for their significant contribution to greenhouse gas emissions and at least as important, air pollution. In response to global concerns about the impact of shipping on the environment and on global warming, the industry is under pressure to reduce its carbon footprint. Regulations set by the IMO (International Maritime Organization) that have put limits for sulfur and nitrogen oxide emissions have led to the adoption of cleaner fuels and technologies, but more ambitious goals are now driving the search for sustainable alternatives.

Methanol; a green marine fuel

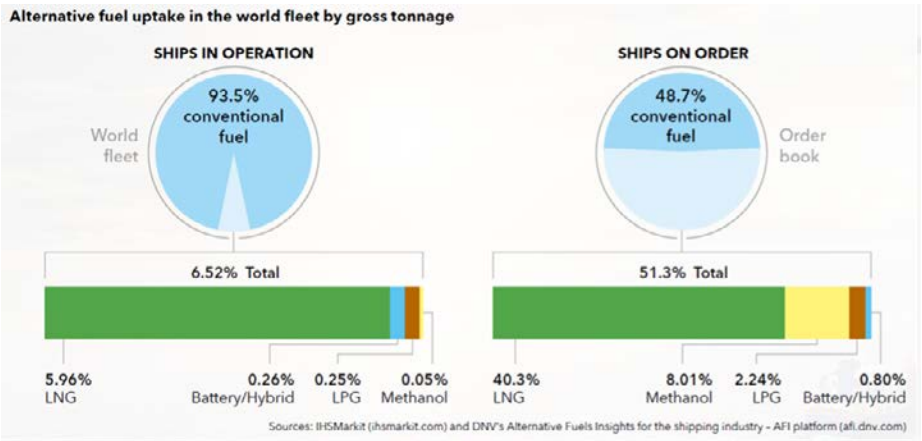
Methanol is a frontrunner in the race for a more sustainable marine fuel. There are several reasons that make it a compelling choice. First, methanol burns cleaner than marine diesel. It has significantly lower emissions of sulfur oxides (Sox), nitrogen oxides (NOx)

and particulate matter. The low emissions make methanol an attractive choice for reduction of harmful air pollution around coastlines and ports.

The production of Methanol can be realized from sustainable sources. It can be produced from multiple feedstocks like biomass, CO2 captured from industry processes or even from renewable electricity. When renewable sources are used methanol can be a carbon neutral fuel and will thus contribute to the reduction of greenhouse gas emissions.

As a fuel methanol has a high energy density which is crucial for the marine industry as it can store substantial amounts of energy in relatively small volumes which is an important requirement for long haul transport.

Finally, methanol can be transported and stored with existing infrastructure like pipelines and liquid terminals. Re-purposing of the existing infrastructure will be needed but it is technically and economically feasible and will support a faster transition than other alternatives may offer.



INTRODUCING THE METHANOL PUMP SKID

For several decades, Honeywell Gas Technologies has been building gas control systems for piston engines powered by natural gas or other combustible gases. The gas control systems are designed and manufactured according to the respective customer requirements. Many of our so-called gas trains are used in the maritime industry where the switch from the polluting marine diesel to the much cleaner natural gas or LNG was already made.

As the maritime industry explores the potential of methanol, innovative solutions are appearing to facilitate its adoption. Honeywell has expanded its portfolio of solutions and developed a methanol pump skid offering that addresses a critical aspect of methanol use in marine engines.

This advanced technology serves as a bridge between the on-board methanol storage and the ships' engines, ensuring a smooth and efficient fuel supply to the combustion engines.

The Methanol Pump Skid is a compact and modular system designed for easy integration into infrastructure onboard ships. Its key features include;

Precision pumping: the skid is equipped with high performing pumps and flow control, ensuring accurate and reliable flow of methanol to the engine.

Remote monitoring: The skid can be connected to remote monitoring system using Honeywell's connected OEM or hardwired to a control room. It allows operators to track fuel levels, performance and potential issues in real time, enhancing system reliability, availability and safety.

Adaptability: The methanol pump skid has a high level of standardization but does allow it to be customized to suit various vessel conditions and requirements, accommodating various capacities and operational requirements.

Sailing towards a greener future

As the industry moves towards a more sustainable future, methanol is emerging as a versatile and environmentally friendly marine fuel. Its properties make it an attractive choice for reducing emissions and mitigating the impact of long-haul sea transport on the environment. Innovative solutions like the Methanol Pump Skid are helping to streamline the adoption of methanol, making it a viable and efficient option for powering the ships that sail our oceans. With such advances, the transition to renewable marine fuels is not only possible, but also an exciting journey towards a cleaner and more sustainable shipping industry.

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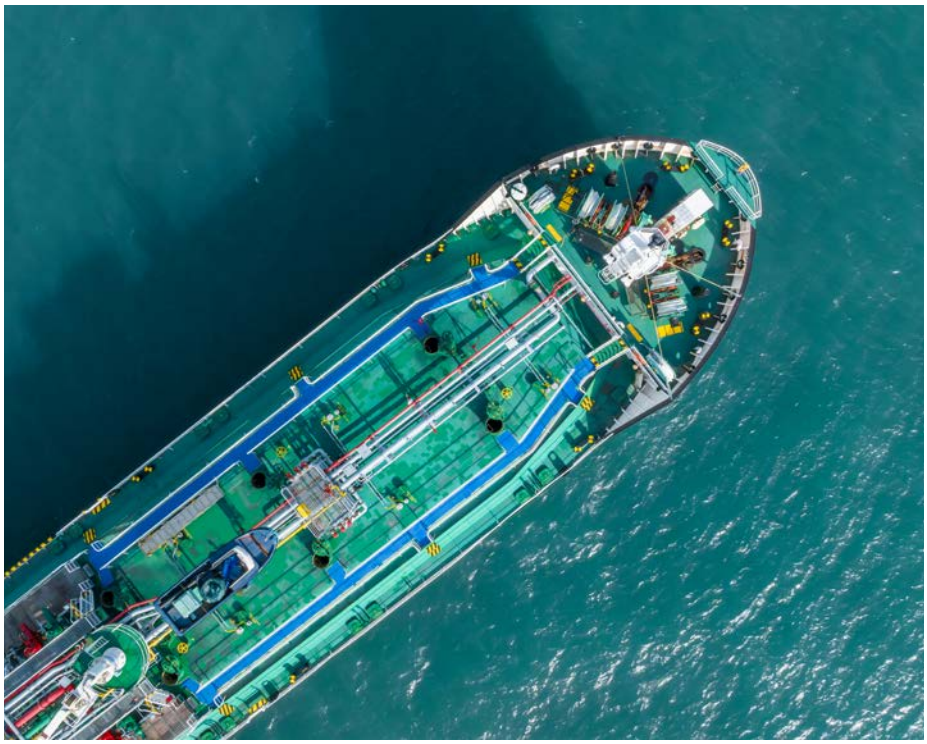

HON 380 MEDIUM PRESSURE REGULATOR SERIES

The HON 380 series of regulators for inlet pressures up to 20 bar supplements Honeywell's product portfolio in the medium pressure sector. Housing nominal sizes DN 25, DN 50, DN 80, and DN 100 are available in combination with three measuring units.

The new series features several outstanding properties:

- Straightforward, modular structure
- Large performance range
- Serviceability
- Compactness

The regulators have been developed and approved for the familiar pressure rating of ANSI 150, up to 20 bar. All of the devices are available with connection flanges of pressure ratings PN 16 and ANSI 150.

An inlet pressure compensation which is tailored to the needs of a spring-loaded medium pressure regulator is also reflected in the performance diagrams – maximum control quality is maintained over the full inlet pressure range. To obtain optimum control accuracy, various measuring unit sizes are available depending on the outlet pressure range. The valve seat size remains unchanged so that no replacement is required. This design satisfies the requirements for a large inlet pressure range, high flow rates, and very good control accuracy.

Effortless maintenance and simple handling make your work easier. Both the regulating assembly and the SSV control unit can be removed from the housing independently of one another. To maintain the regulating assembly, the screws under the measuring unit must be removed. Then the entire measuring unit, including the valve unit, can be lifted out of the device. This allows direct access to the valve for inspection and maintenance work. In this way, the maintenance of the regulating assembly can be shifted to the workshop – if necessary, a freshly serviced unit can be plugged in. The same applies to the SSV control unit, which can be removed from the housing as a unit after removing the screws. Only the housing remains in the pipeline.

Experience and feedback from field tests and initial installations have highlighted the benefits of the simple removal and installation of the regulating assembly and the SSV in practice. Rapid modifications on site can be carried out with very little effort. For installation work, there is also a benefit relating to the material used and the use of components which are already protected against corrosion – making it much easier to remove the nuts and ensuring no paintwork damage after reassembly.

The large regulating range of the devices, based on the perfectly tailored inlet pressure compensation, has been confirmed by practice – with one valve size with a full bore being used per nominal size. The HON 380 used with a nominal size of DN 50 and a flow coefficient of 1490 m³/h*bar, with an inlet pressure of p_u 10 bar, set to an outlet pressure of p_d 20 mbar can achieve a flow rate of Q_{max} 8195 m³/h. The control characteristics, even with very low flow rates well below the closing pressure zone of 2.5%, are impressive. Even with the flow rates set in single figures, the HON 380 keeps to the set limits, namely 0.1% of the maximum flow rate.

The benefits of a direct-acting regulator that requires a very low inlet pressure differential for operation (the minimum inlet pressure $p_{u\,min}$ is just 4 mbar above the closing pressure zone) must also not be forgotten.

Experience shows that its large capacity range and versatility in terms of outlet pressure make the HON 380 the perfect device for applications in municipal gas distribution and for industrial use. The outstanding control properties for very low to very high flow rates will quickly persuade you. The clever handling for operation and maintenance guarantees low installation and maintenance costs.

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Expansion of the document library

H2 MANUFACTURER'S DECLARATIONS

Four years ago, the Honeywell Gas Technologies GmbH document library was created, since when it has been the first port of call for our customers to access the latest brochures and operating manuals for gas pressure regulators and safety equipment.

The library is constantly being updated and expanded with, for example, 3D views of our devices being made available recently online to provide system designers and planners with fast, direct access to well over two hundred 3D files for our devices in the most common formats.

The last update of the portal means that the manufacturer's declarations for operating our products with hydrogen are now available to download.

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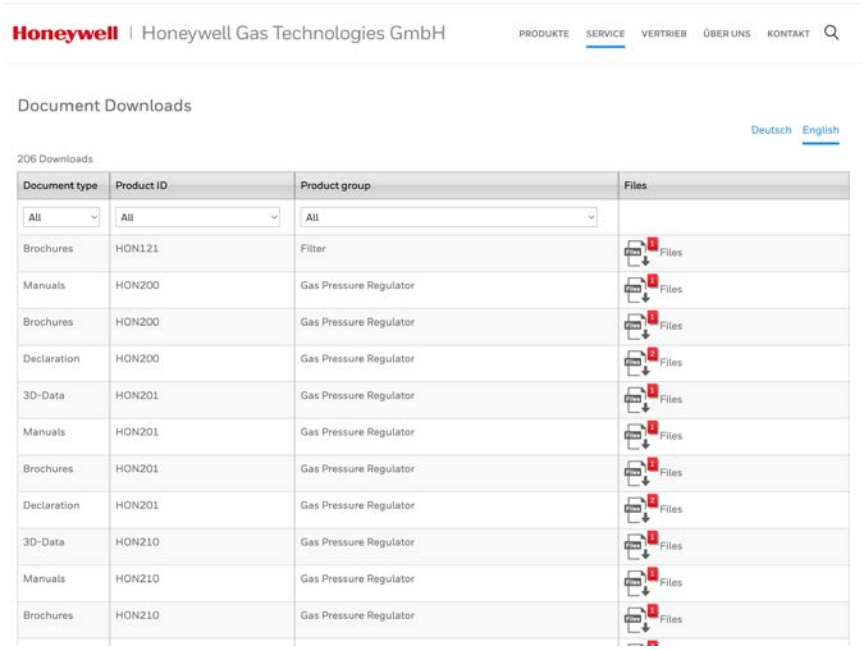

HOW RABO® COMPACT CAN HELP SOLVE OPERATIONAL CHALLENGES

The new technology offered by RABO"' Compact gas meters can tackle many of the issues caused by standard meter systems:

PROBLEM

Regular maintenance issues

Many meters require oil for initial installation and periodic filling, which increases costs for human resources, materials, and time. In addition, to fill with oil, a meter must be depressurized, and a rotary meter containing oil cannot be t transported.

SOLUTION

RABO® Compact offers a maintenance-free option

PROBLEM

Difficult installation

Many types of meters, including diaphragm meters, cannot be installed in small spaces

SOLUTION

RABO® Compact is designed for mounting in a cabinet to build a smaller station.

PROBLEM

Low accuracy and no T/P compensation

Low accuracy and no T/ P compensation from commercial and industrial diaphragm meters increase financial risks for your operation.

SOLUTION

RABO® Comp ac t improves acc u racy with EVC in stall ed even- precise calculation, plus T/ P compensation.

PROBLEM

No flexibility

Standard meters can only be installed for one flow direction and without an encoder ready.

SOLUTION

RABO® Compact can be used for any flow direction and can be installed in the horizontal or vertical position. It has a rotatable index with different index variants and an encoder ready to eliminate discrepancies between the mechanical index and the EVC.

FUTURE-PROOFED GAS METERS

Hydrogen opens up a future for the gas industry. In many industrial applications, gas is indispensable or can only be replaced with great effort. Hydrogen or methanized hydrogen, a form of energy, will also come onto the market for heating and represents an interesting alternative to heating pumps for many existing properties.

The classic diaphragm gas meter works with a volumetric measuring principle. This type of measuring device can accurately measure all types of gas as long as they are not corrosive or chemically reactive. In cooperation with the notified body PTB, Elster has coordinated a testing program based on which an extended type examination certificate was achieved. In addition to the gases from the 1, 2 and 3 gas families, natural gas with any admixture of hydrogen has now also been approved. (DE-07-MI002-PTB001, Revision 12)

We are confident that in a further step we will be able to prove the suitability of all gas meters that have so far been placed on the market under the relevant approval.

With this certification of the BK meters, we achieve the desired investment security for our customers. Unlike marketing slogans such as “H2-Ready”, the type examination certificate legitimizes the fiscal accounting.

Elster is already working on further steps, about the suitability of diaphragm gas meters Temperature compensation for measuring Natural gas with any hydrogen content to prove. Furthermore, we are also striving for change the gas group in which can be seen separately ATEX certificate.

For further questions on these topics we are at your disposal.

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PTB
KBS
VERTRAULICH
CONFIDENTIAL
EU-Baumusterprüfbescheinigung
EU Type-examination Certificate

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THE
FUTURE
IS
WHAT
WE
MAKE IT

Honeywell