

Replacing the proven with the better – take advantage of SonarFox® USG 20

## Ultrasonic level switch instead of vibration fork



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engineering applications

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with temperature  
measurement

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Vibration level switches are frequently used for level detection in tanks and pipes, but such level switches have a number of shortcomings in terms of the liquid and the running process. A vibration fork must always extend into the liquid so that it is subject to pollution and susceptible to malfunctions. Automatic cleaning is not always possible due to the fact that the vibration fork is an interfering contour in the process.

### Measurement technology benefits

AFRISO has now solved these and further issues in the instrumentation of process equipment by using ultrasonic wave technology. A characteristic “signature” is created when ultrasonic waves

pass through materials; this signature depends on the type and density of the material. The system uses this signature in order to determine whether there is a transition to air or liquid. This method has proven successful in high-tech applications such as medical imaging techniques or material testing and inspection.

The new SonarFox® USG 20 level switch now brings ultrasonic wave measurement for highly reliable results to process engineering. This technology is extremely dependable and maintenance-free and lends itself to a vast variety of applications.

*Learn more about the benefits of ultrasonic level switches on the next page*



### EDITORIAL

### Dear Reader

*Virtually all industrial processes are monitored and controlled automatically. Engineers and technicians are confronted with new challenges during planning and operation of plants. The selection of suitable measuring instrumentation is influenced by numerous factors such as medium, process adaptation, cleanability and, of course, cost-effectiveness. AFRISO is your one-*

*stop shopping partner of choice for measurement technology instrumentation at an outstanding price/performance ratio.*

*This edition of INFORUM is to serve as a source of inspiration – in 2015, AFRISO is again offering numerous highlights and innovations. The time has come to successfully tackle legacy “measurement problems” and consider new solutions.*

*Let’s talk about products for which this could be feasible, at one of this year’s fairs or at your company – we look forward to a dialog with you.*

*Best regards  
Christian Blasinger  
Marketing Director Division II  
AFRISO-EURO-INDEX GmbH*

## Title continuation

The main challenge in designing the product consisted of adapting the technological potential of ultrasonic measurement to the requirements of industrial level applications. Our design efforts resulted in the creation of a technology platform which allows for the implementation of high-performance product solutions at highly attractive prices.



*The modular process connection of USG 20 uses an adapter system which covers all standard process connections. All it takes to adapt the level switch to the process is to screw on the required connection.*

**NEW**

The new USG 20 level switch is flush with the inside wall of the tank or the pipe, making the level switch a prime choice for hygienic processes as well. Because there are no interfering contours (such as vibration forks or other measuring components) protruding into the liquid, pipe systems are piggeable and suitable for CIP/SIP. Reliable level monitoring is now possible even with small pipe cross sections.

### Modular and versatile

Standard process connections cover simple threaded connections G $\frac{1}{2}$ , G $\frac{3}{4}$ , G1, weld-in sockets, Tri-Clamp connections, dairy fitting and VARIVENT connections to allow for use in a great va-

riety of applications. Due to the modular connection concept, stocking and multiple use are also possible. Adaptation of the level switch is as simple as screwing on the required connection piece.

Self-monitoring versions which allow for transmission of alarms to the process control system in the case of measurement problems are a special highlight. USG 20 is even suitable for non-invasive measurements through plastic tanks or pipe walls.

## 10 excellent reasons for using ultrasonic level switches

- Piggeable pipes - flush installation without interfering contours
- Effective cleaning cycles in hygienic processes: Suitable for CIP and SIP
- Easy to integrate, even with small pipe cross sections
- Modular process connection system with adapter system (G $\frac{1}{2}$ , G $\frac{3}{4}$ , G1, weld-in socket, Tri-Clamp, dairy fitting, VARIVENT, and many others) for fast, independent adaptation to the process
- Extremely short response time of 0.02 seconds
- Easy conversion of existing measuring points
- Suitable for many applications: Independent of the conductivity of the liquid
- High resistance to chemicals
- Process reliability: Versions with additional status output for continuous function monitoring
- Special versions for non-invasive measurements from the outside through plastic tanks or plastic pipe walls

Pressure – Temperature – Level – Gas Analysis

# Complete range for chemical and process engineering applications

You don't have to take our word to it – simply put us to the real test and check out our offering for your instrumentation requirements.

Reliability, precision and a long service life are crucial when it comes to the highly automated processes in chemical and process engineering applications. Stringent international directives such as PED, ATEX or SIL specify the requirements and application possibilities of process instrumentation equipment.

Succeeding in challenging markets requires partners who know what counts. Partners who are at home in the industry of their customers, who can offer a standardised product range, who lead the way to the future of technology with innovative concepts and products.

We tap our comprehensive know-how and expertise in the industry to make our customers' processes simpler, safer and more competitive. Our robust process instrumentation systems

are used in non-hazardous and hazardous areas; they deliver perfect measurement results even under most adverse ambient conditions. In addition to our comprehensive range of mechanical and electronic pressure, temperature and level instruments, we also offer suitable supply and signal evaluation systems.

In the case of system solutions, we do the entire engineering for you, all the way to the production of the finished system.

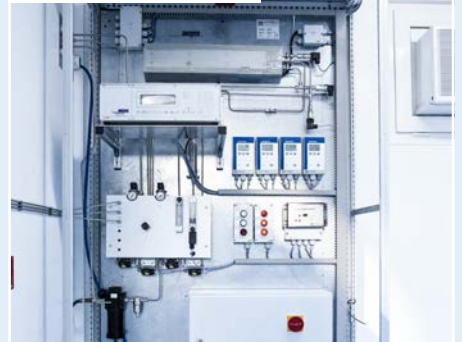
### AFRISO measuring instruments cover the following ranges and media:

- Pressure: 0/2.5 mbar to 0/4,000 bar
- Temperature: -50 °C to +1,100 °C
- Level: 0/20 cm to 0/250 m
- Gas analysis: O<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S

Pressure gauges for chemical applications and pressure gauges



Stationary gas analysis



Thermometers for chemical applications



Level indicators and level controllers



Pressure transducers for process engineering



**SIL**  
Protect your process!

Overpressure safety 1,000 x FSD

## Stainless steel diaphragm pressure gauge PF 100 E

The new stainless steel diaphragm pressure gauges are designed for applications with minimum pressure involving pressure surges. The pressure gauges are available with nominal sizes of 100 and 160 mm and with ranges of 0/10 mbar to 0/60 mbar. All gauges have an overpressure safety of up to 10 bar.

The gauges with high overload safety bring increased safety to the measuring point. Destruction of the diaphragm pressure gauges by pressure surges, for example caused by “small explosions” of gases, is practically ruled out. An ATEX version of the pressure gauge is also available. This considerably increases process reliability in industrial facilities of the chemical industry and process engineering applications.



Optimally suited for pressure transducers

## DMU 02 Vario with field housing

The modular series of pressure transducers DMU 02 Vario is now also available with a field housing so that the devices can be used even under rough environmental conditions.

Series DMU 02 Vario pressure transducers use a polysilicon thin-film measuring cell. The semiconductor bridge circuit is attached to an isolated stainless steel diaphragm.

This measuring technology combines all the positive characteristics of conventional pressure sensors such as a high output signal, excellent dynamic behaviour, high long-term stability; in addition, it is resistant to vibrations and offers a high burst strength. Seals are not required since the measuring cell is directly welded to the process connection. All standard pressure connections plus customised connections are available.

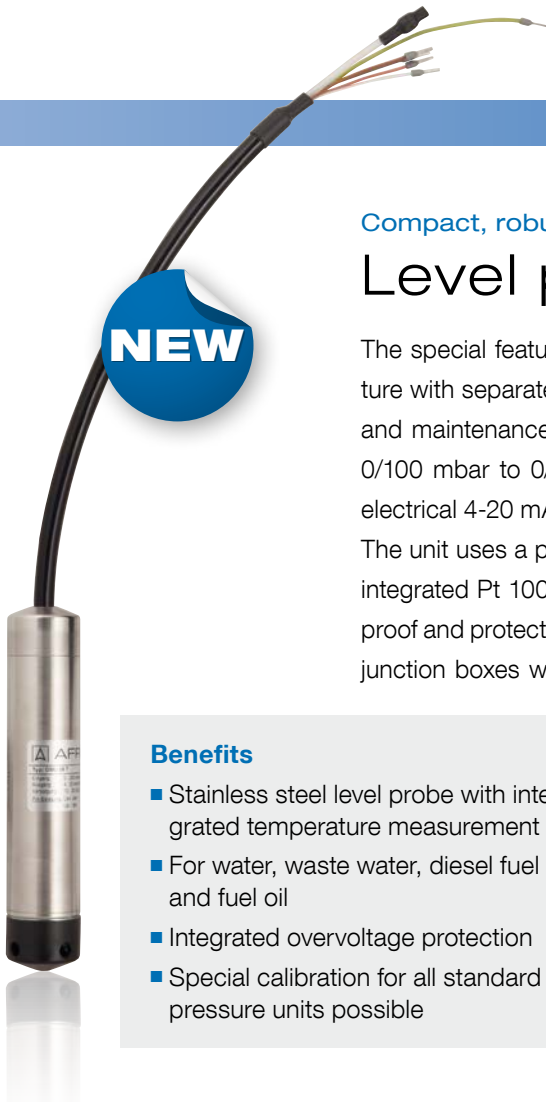
### Benefits

- Field housing with degree of protection IP 67
- Connection technology with numerous versions
- Extremely resistant to shock, pulsation and vibration
- Best dynamic pressure resistance at high load changes



*With maximum precision, AFRISO makes welding seams by means of a laser with a roughness of  $\leq 0.8 \mu\text{m}$ .*





Compact, robust level probe with temperature measurement

## Level probe HydroFox® DMU 08 T

The special feature of the new level probe DMU 08 T is the ability to measure level and temperature with separate, independent signal amplification. This combination considerably reduces wiring and maintenance. DMU 08 T converts the physical pressure of liquids in the pressure ranges of 0/100 mbar to 0/25 bar and temperatures of 0/30 °C to 0/70 °C into proportional, independent electrical 4-20 mA signals.

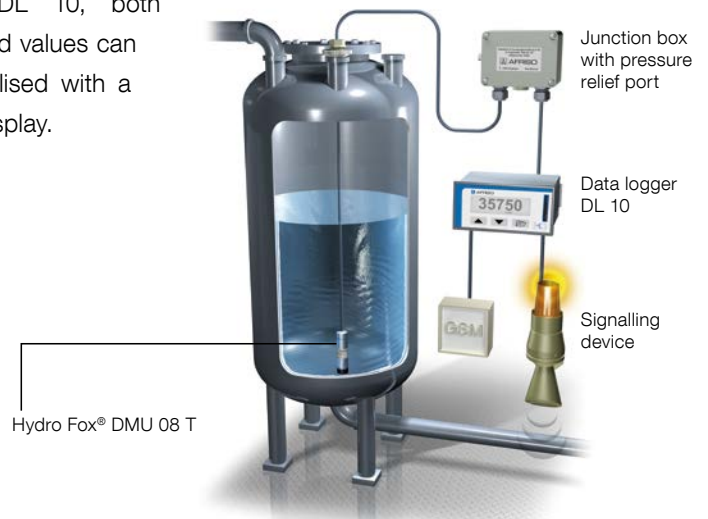
The unit uses a piezo-resistive silicon measuring cell; the temperature is measured by means of an integrated Pt 100 sensor. The measuring instrument is supplied with DC 10-30 V; it is short circuit proof and protected against reverse polarity. An adapted range of accessories such as cable glands, junction boxes with pressure relief port (IP 65) and anchor clamps round off the offering. In con-

### Benefits

- Stainless steel level probe with integrated temperature measurement
- For water, waste water, diesel fuel and fuel oil
- Integrated overvoltage protection
- Special calibration for all standard pressure units possible

junction with the new data logger DL 10, both measured values can be visualised with a single display.

Application example:



Universal, multi-channel process display with integrated data logger

## Data logger with display DL 10

The new DL 10 data logger is used for visualising up to four independently parameterisable analogue signals; it features a data logger function for all channels and provides an integrated supply for 2-wire and 3-wire transmitters. Each channel has a current/voltage input and can be scaled as required. The following analogue sensor inputs are available: 0-20 mA, 4-20 mA and 0-10 V. DL 10 excels with a variety of practical features. In addi-



### Benefits

- Transmitter supply for 4 independent channels
- Freely adjustable scaling and maximum pointer function
- Linearisation via 24 x/y points
- Freely adjustable storing cycles
- Adjustable trigger thresholds for starting the storing function

tion to pre-programmed units, it is possible to set up custom display units. For example, the measured value can be displayed as a quasi analogue bar. The measured values can be acquired per channel in adjustable storing cycles and saved to an SD memory card. Adjustable trigger thresholds for starting the storing function are possible. All configuration data can be read, modified and archived via a PC. The text-based user interface is easy to understand with selectable display languages (English, German, French) ensures fast and easy commissioning.

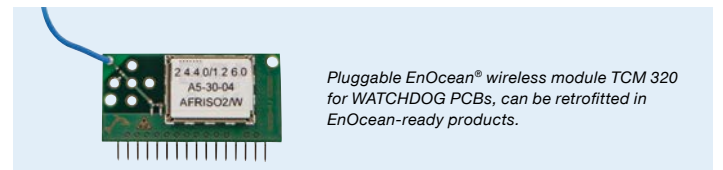
Alarm units and smart building systems for industrial building technology

# AFRISO WATCHDOG alarm units with EnOcean®

In industrial buildings, there are many risks which should be monitored to avoid annoyance and unnecessary work for owners and service and maintenance personnel and to avert extensive damage. With the proven WATCHDOG line of alarm units, AFRISO has been offering devices for reducing a vast array of risks in administration buildings, storehouses, engine rooms, depots for hazardous substances, etc. for many years. A large variety of probes and sensors enable fast detection of liquid levels, leakage and accumulations of liquids, gases or smoke. Integrated visual and audible alarms at the wall mounting housing provide the appropriate signals in hazard conditions. For remote signalling and easy integration into smart building systems, the devices will now successively be EnOcean®-enabled by providing the possibility of retrofitting an EnOcean® wireless module TCM 320. Whether or not an alarm unit already features this technology is indicated by the labels "EnOcean-ready" on the nameplate. If an AFRISOhome gateway is installed as a wireless building cen-



tre (in addition to the relay), the facility management personnel in charge of maintenance can be notified of an alarm via smartphone so that appropriate action can be immediately taken. Administration buildings and factories are reliably protected and monitored.



Pluggable EnOcean® wireless module TCM 320 for WATCHDOG PCBs, can be retrofitted in EnOcean-ready products.

Retrofitting: Safety for long service life of tanks

# Inner linings for high resistance of classical tank facilities



Reliable tank protection systems are indispensable because tank owners/tank operators are liable for all damage resulting from escaping groundwater polluting liquids. Owners often have a false sense of being on the safe side because corrosion damage is not immediately visible from the outside in many cases. The AFRISO tank protection system can considerably prolong the service life of a tank and reduce the likelihood of expensive damage in a simple and cost-effective way.

AFRISO offers a range of leak protection linings (plastic inner linings) for a tanks with a whole range of different tank shapes and capacities of up to 100,000 litres. Inner linings for fuel oil, diesel fuel, water, AHL and AdBlue® are available off the shelf – suitability for other leaks can be determined on the basis of material tests. The inner lining is usually tailored in the factory and then installed by a specialised tank protection company on site. The space between the tank and the lining is evacuated and monitored by a Eurovac leak detector.



Vacuum type leak detector for monitoring the interstitial space between tank wall and inner lining



Broad range: Mobile gas analysis and turnkey measuring containers

## Emission measurement for industrial combustion processes

AFRISO offers an extensive portfolio of products for the analysis of gases in industrial combustion processes: In addition to portable measuring instruments for servicing combustion systems, AFRISO provides approved gas analysers for continuous emission monitoring as well as application-specific heated or non-heated gas treatment systems and evaluation systems. By using continuously operating gas analysers, it is possible to recognise tendencies, monitor, control and/or evaluate processes. The following gases can be monitored: O<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>x</sub>, N<sub>H3</sub> and many others.

We support you in all project stages with engineering, construction, service, commissioning, remote maintenance, repairs and equipment monitoring – all from a single supplier.

Our stationary systems are used, for example, in a broad range of industrial combustion processes such as biogas and waste treatment facilities, power plants, crematoriums, engine test benches, large combustion systems, industrial gas filling systems or turbo generator monitoring.



Latest project:

### Continuous emission monitoring (CEMS) on vessels as per MARPOL Annex VI

The AFRISO measuring system MEA 3000 / 3300 is based on proven NDIR technology and measures the SO<sub>2</sub> and CO<sub>2</sub> limit values upstream or downstream of the scrubber and transfers them to the vessel's main control system.

Direct access:  
[www.afriso.com/marine](http://www.afriso.com/marine)



Suitable servicing systems for any application.

## AFRISO servicing devices

Portable AFRISO measuring systems are professional solutions for adjustment work, servicing, maintenance and repairs. You benefit from a range of devices adapted to each other that keeps setting new standards.

Handheld temperature measuring instruments TM7 / TMD7



Handheld pressure measuring instruments Series S4600 ST



Air velocity and air mass flow meter BlueAir-ST



Handheld measuring instruments for adjusting and servicing combustion systems EUPOLYZER Six and MULTILYZER STx



Dust measuring instrument STM 500







## Reliable instrumentation in process engineering AFRISO PARTcommunity

With the CAD product catalogue, AFRISO offers designers, engineers and purchasers countless possibilities to simplify and optimise planning and purchasing processes. 2D/3D models of pressure gauges, pressure transducers, level indicators, thermometers and accessories can be downloaded or obtained via e-mail in all CAD formats available on the market via the online portal PARTcommunity.

The required parts are selected by means of planning-relevant parameters and a product assistant. The “quasi-configured” model does not only contain the geometry data for checking the connection and fit – all other technical specifications including the ordering code are available and can be directly integrated into the design and the bill of materials.

Direct access:  
<http://afriso.partcommunity.com>



One, two, three ...

## AFRISO catalogues 2015/2016

To facilitate the search for “your” product even more, AFRISO has re-arranged the well-known complete catalogue and divided it into three

individual catalogues: The catalogue **DOMESTIC TECHNOLOGY** covers all products for safety and measuring equipment for heating systems, solutions for energy saving and rainwater harvesting as well as alarm units and smart building systems for wireless building automation. The catalogue **INDUSTRIAL TECHNOLOGY** comprises the complete range of high-quality measuring instruments and system solutions for pressure, temperature and level as well as customised, industrial solutions for stationary gas analysis – for your specific industrial application.

The catalogue **PORTABLE MEASURING INSTRUMENTS** is geared towards specialised companies, service technicians and installers and covers certified, mobile service measuring instruments for flue gas analysis as well as testing and inspection equipment for maintenance and diagnostics.

Available in German language – DVD-ROM in English by the end of June.

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Catalogue DOMESTIC TECHNOLOGY

Catalogue INDUSTRIAL TECHNOLOGY

Catalogue PORTABLE MEASURING INSTRUMENTS

Diaphragm pressure gauges, overpressure safety 1,000 x FSD

Ultrasonic level switch USG 20

Pressure transducer with field housing

Level probe DMU 08 T

Data logger with display DL 10

Leak protection lining

AFRISO WATCHDOG alarm units

Stationary gas analysis

Measuring and control technology for hygienic processes

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Company

Website

First name

My industry

Last name

E-mail

Street

Signature

Postcode, city

I authorise AFRISO to send me information on the product range on a regular basis, also via e-mail. I can revoke this authorisation at any point in time. No data will be disclosed to third parties.