Baumer
Passion for Sensors

Another Baumer INNOVATION

CleverLevel LBFS/LFFS switch

The really clever alternative to the vibrating fork level switch

The really clever alternative

With Baumer's *CleverLevel* series, you can enter into a new era of level detection technology that is convenient, precise, easy and maintenance free.

CleverLevel – one product to meet all your detection needs!

Always the right level detection – the vibrating fork alternative.

The widely used vibration level switches have vibrating forks that are quite large and which protrude quite a ways into the material being measured.

Since pasty materials are prone to stick to these forks, it can often cause measuring errors. Coarse granular media such as grains can easily become lodged between the forks and also cause measuring errors. Moreover, not only are the forks difficult to clean, but liquid and powder substances even require different fork designs.

With the sensors of the *CleverLevel* switch, no media remnants or solids are able to accumulate on the sensors. A precise and reliable level detection is thus ensured even under difficult circumstances.

The original – measurably better

The *CleverLevel* switches of Baumer's LBFS and LFFS series offer significant advantages.

Reliability
- Insensitivity to foam, adhesions, flows, turbulences and suspended particles
- Maximum temperature stability and repeat accuracy
- Resistant to shocks and vibrations

Cost-effective
- One sensor for all media and applications
- Maintenance free

Functionality
- Bright blue LED switching point indicator
- Fastest response times <100ms
- Robust and corrosion-resistant housing
- Fully integrated electronics
- No moving parts

Flexibility
- Extensive product portfolio with different process connections

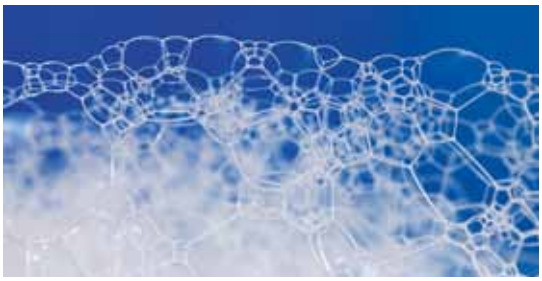
The perfect solution for your applications

Level detection for storage tanks, containers and pipelines

Storage, buffer and filling tanks are generally equipped with switches for detecting high and low filling levels. The sensor's short response time facilitates precise and reliable level control.

Detection of different media and phase separation

In certain processes, the material appears in different phases. These can either be identified (e.g. oil on water) or their measurement might be masked (e.g. foam layer).



Detection of contaminants in media

Contamination of media is not only an issue for food production. Catching it early on in the process is economically advantageous. For example, remnants of cleaning agents can be reliably detected in liquid food products long before any subsequent processing takes place.

Protecting pumps from running dry

Pumps running dry is a critical process problem because it can lead to dosing deviations or damages. These challenges can be resolved even if the media is viscous or sticky.

Reliable filling level regardless of the media

Today, numerous industrial facilities are monitored and controlled around the clock with an automated system. Liquids and bulk goods are often involved in industrial processes where it is necessary to detect their respective fill levels. This is also the case in trains and ships where tanks and hydraulic machines need to be controlled.

Based on the frequency sweep technology, our *CleverLevel* LBFS switches are suitable for high-viscosity fluids as well as for solid or liquid media. Their compact sensor tip allows them to be integrated even in small pipes.

Since they are unaffected by turbulence, sedimentation, air bubbles, foam and even by suspended or floating particles, they are suitable for even the most difficult applications.

Industries:

- Railway
- Maritime
- Heavy machinery

When it has to be hygienic – we have a clean solution for you

According to the high-quality housing materials such as high-grade stainless steel and PEEK, our sensors meet all requirements for the food and beverage industry as well as the pharmaceutical industry.

The tip of the sensor is made of a special, approved PEEK plastic that only protrudes 15 millimeters into the process. The possibility of the sensor causing flow blockages or undesired shadows can thus be excluded.

Starting up the sensor is as easy as the operation itself. All media are detected using factory settings. If you need to use the extended functions e.g. media seperation or PWM the switches are easily configured thanks to Baumer's FlexProgrammer.

Industries:

- Food and Beverage
- Laboratory
- Pharmaceutical

One sensor for all applications

One sensor detects different media

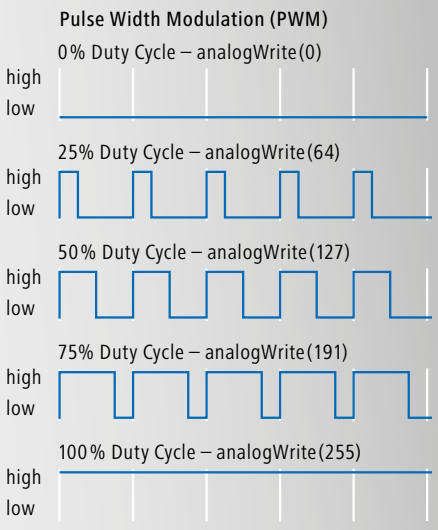
With pulse width modulation (PWM), you are able to detect different media in the same processing line or processing tank to differentiate the final product (e.g. different kind of fish sauce, different style of beer, etc.). The process uses an analog time signal that facilitates continuous measurement. The time signal changes according to the Dk (dielectric constant) value of the media.

This makes the *CleverLevel* LFFS/LBFS unique as it:

- allows triggering on various media (e.g. mixing containers)
- facilitates monitoring changes in the medium's Dk value (e.g. measuring the purity of lubrication oils)

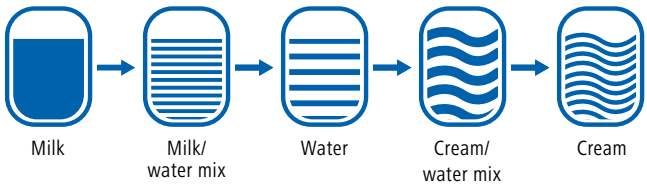
and enables you to

- identify which specific medium is currently flowing in the pipe (e.g. milk, water, CIP-fluid, etc.)
- take action if medium is polluted with another medium (e.g. oil polluted with water)



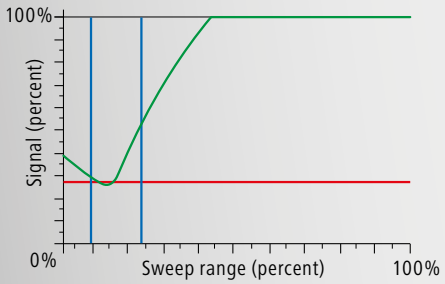
Application example:

Water is often used at dairies to separate two different products in the pipeline. PWM minimizes waste since the Dk value is measured constantly, thereby ensuring that only water-mixed product is directed to the wastewater system and no good, undiluted product is wasted.

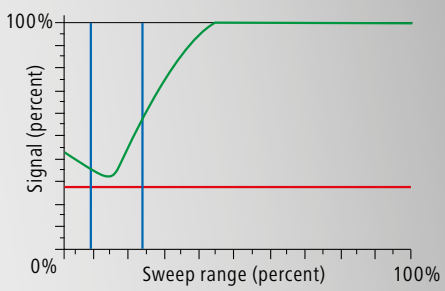


Distinguishing between two very similar media.

Example:
Media 1: Beer
(Status: Triggered)



Example:
Media 2: Water
(Status: Untriggered)



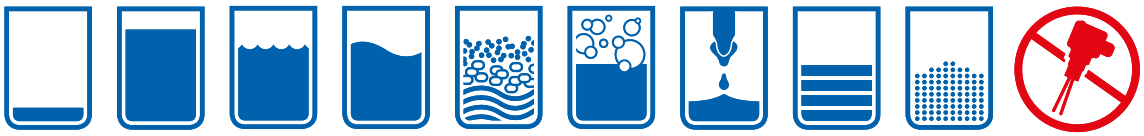
Sometimes two media might have the same Dk value. So how can they be distinguished? Setting each of the two independent switching points doesn't help here (two blue lines).

The *CleverLevel* LFFS switch is the solution: Thanks to its frequency sweep technology and its ability to analyze the strength of the signal, and the signal dumping which differs from media to media. The switch can be set to trigger only on the specific medium even if both media involved have the same Dk value.

This is unique in the sensor Industry.

Level switch technology for all media

Our *CleverLevel* series gives our customers what they have always wanted, namely, for one sensor to be able to handle all level-detection tasks.



Low level | High level | Low viscosity | High viscosity | Media separation | Foamy | Sticky/electrostatic | Solid | Powdery | Vibrating fork sensors no longer necessary.

Requirements for sensors are just as diverse as the media the sensors are supposed to detect.

Wouldn't it be practical to be able to protect pumps from running dry, reliably monitor filling levels, and differentiate media with just one sensor? Baumer's revolutionary *CleverLevel* innovation makes this possible for the first time ever. And it can do so regardless of whether the media is bulk goods, foams or liquids or whether it is sticky, pasty or has a high or low viscosity. Reduce how many different kinds of sensors you stock, but not your requirements.

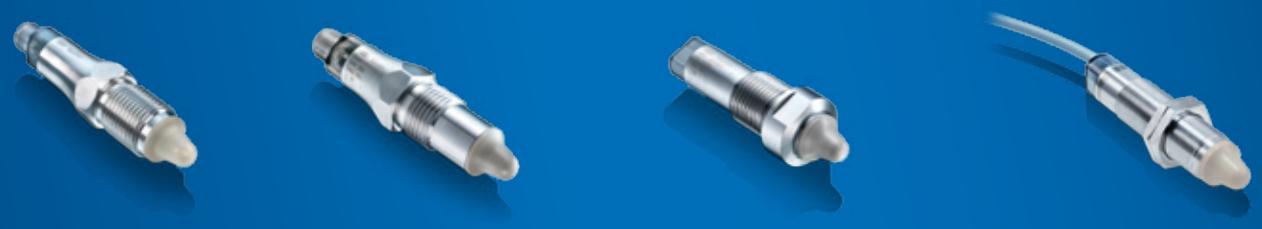
One sensor for all applications

Our engineers tapped into their passion for sensors and kept their focus on the user when they developed the *CleverLevel* switch that is based on frequency sweep technology.

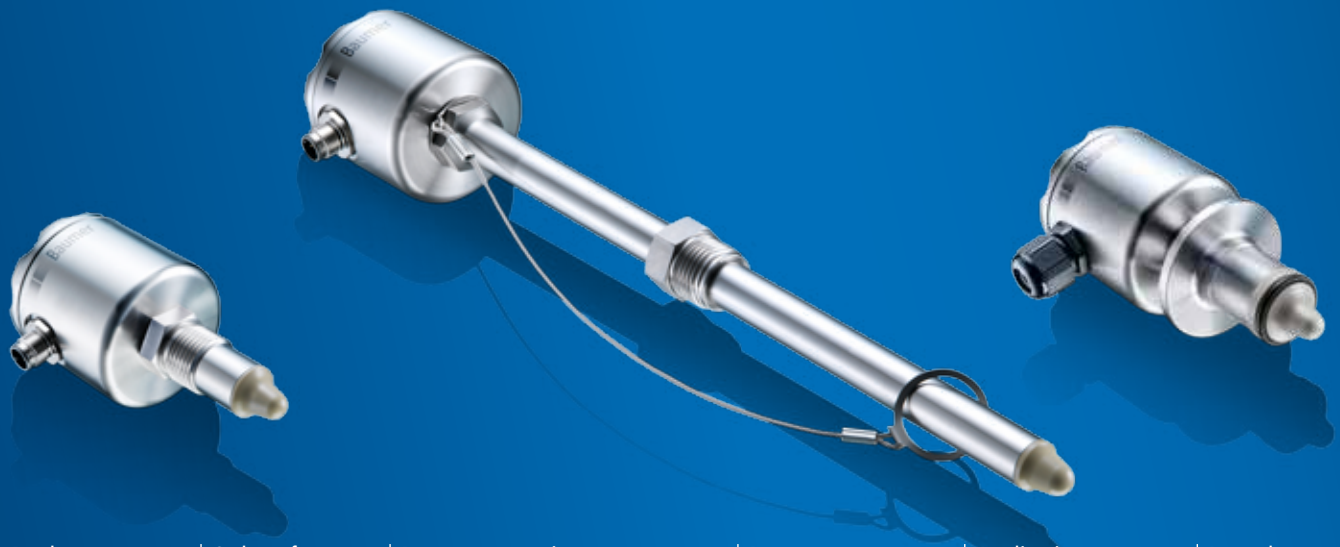
In comparison to other measuring methods such as vibrating forks and capacitive sensors, this technology has decisive benefits: It has no vibrating parts and is unaffected by conductivity- or temperature-based changes. changes. Furthermore, the sensor is suitable for all types of applications so you can use the same sensor for the entire process, thereby reducing the number of sensors you stock.

Product overview of *CleverLevel* LBFS/LFFS switch

One product – different shapes



Product	Order reference	Process connection	Process temperature	Application area	Data sheet
CleverLevel LBFS	LBFS 0xxx x	G1/2", G3/4", 3/4"NPT, G1", M18	–40…+115 °C	Industry	
CleverLevel LBFS	LBFS xx42 x	G1/2" hygienic	–40…+115 °C	Hygienic	
CleverLevel LBFS	LBFS xx5x x	G1/2" for reverse assembly	–40…+115 °C	Industry	
CleverLevel LBFS	LBFS xx71 x	M18x1	–40…+115 °C	Industry	



Product	Order reference	Process connection	Process temperature	Application area	Data sheet
CleverLevel LFFS	LFFS xx1	G1/2" hygienic	–40…+115 °C	Hygienic	
CleverLevel LFFS	LFFS xx4	G1/2" sliding connection	–40…+200 °C	Hygienic	
CleverLevel LFFS	LFFS xx2	3A DN38	–40…+115 °C	Hygienic	

More level measurement information, products and data sheets are available at:
www.baumer.com/CleverLevel

Find your local partners at: www.baumer.com/worldwide

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Passion for Sensors

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