CleverLevel® level switches
Clever³ – easier. more reliable. more intelligent.
Truly clever point level detection.

The original is one step ahead: The *CleverLevel®* series from Baumer now offers even more options — regardless of the medium or measurement task, when it comes to point level detection we always offer you the optimal solution. Even media detection without parameterization is no problem with the innovative PL20. In addition, thanks to the optional analog output, media differentiation is also possible.

**Clever³ — your benefits**

1. **Quick and easy integration**
   - A variety of process connections and adapters facilitates installation and allows quicker commissioning
   - Easy to integrate into control systems — digital via IO-Link, classical or via analog output
   - Limited installation depth without alignment — minimal process interference and easier integration in the machine construction
   - Various approvals — high process safety and reliable operation

2. **Robust, durable, with process safety**
   - Robust stainless steel sensor body — for challenging production situations with changing temperatures
   - Sensor tip with a PEEK design — hygienic and easy to clean
   - Unaffected by adherence — no faulty messages, minimized downtimes
   - Universally suited to all media — whether liquid, pasty, viscid, or granular

3. **Intelligent design and functions**
   - 360° LED — multi-colored, visual process indication
   - Graphic evaluation of the switching state — increased process safety and transparency
   - Several switching outputs and analog value — flexible switching applications
   - Easy commissioning — no adjustment to media

Learn more about the benefits of *CleverLevel®* level switches [www.baumer.com/cleverlevel](http://www.baumer.com/cleverlevel)
The clever alternative to vibrating forks

The level switch CleverLevel® is the solution for a variety of applications for which standard vibrating forks are used today. It offers a considerable advantage, especially for applications with adherence, which it automatically masks. With the Adaptive-Trigger function, the CleverLevel® is now one more step ahead of vibrating forks – it automatically adjusts to all media even without parameterization. Thanks to its limited installation depth it also ensures low process interference.

Advantages due to the compact design

- Easy to clean
- No alignment of the sensor tip necessary
- Limited turbulences and low flow resistance
- Also suitable for small pipe diameters
The right solution for your application.

A single sensor for all media. Regardless of whether they are liquid, pasty, viscid or solid

Requirements for sensors are just as diverse as the media the sensors are supposed to detect. Applications vary from dry running protection for pumps through reliable overfill protection or leak detection to the selective detection and masking of foam or separating layers. For the first time, Baumer has made it possible to meet all of these requirements with one single sensor technology. Here it does not matter whether we are dealing with bulk goods, powders, liquids or foam, or whether the medium is sticky or has high or low viscosity.

Improvement through simplification

The reduction of the confusing variety of components through the use of the same sensor type has many advantages. Procurement and spare parts logistics as well as maintenance cost less. The development of new plant and machinery is also more efficient. Multiple usage also reduces the amount of documentation required. The large number of available process connections and adapters simplifies integration into existing systems.
Point level detection – universal for all media.
Point level detection

Regardless of the media, *CleverLevel®* level switches reliably and precisely detect the point level of tanks, containers, and pipes. This way, the possibility of running empty can be detected early on and overfilling is prevented.

Foam and separating layer detection

With the Window-Trigger, separating layers – for example, beer and foam or oil and water – can be detected. Thanks to the two switching outputs, the *CleverLevel®* can be parameterized in such a way that the medium is reliably detected and the different liquids differentiated. The graphic evaluation allows the process to be tracked and optimized even more effectively.

Dry-run protection for pumps

Dry running of pumps is a critical process problem. It can result in dosage deviations or even damage. With its quick response time, the *CleverLevel®* easily masters this challenge. Faster switching off saves valuable resources.
Adaptive point level detection without parameterization.

The flexible adjustment of systems to short-term requirement changes is an increasingly common production challenge that affects system and machine constructors as well as the food processing industry. Ensuring this flexibility requires sensor technology that can meet these challenges. With our Adaptive-Trigger, we can now provide you with the solution:

Automatic media adjustment

For applications in the food production sector with changing recipes or batch production, the PL20 offers true added value with adaptive setting of the switching point. Without the need for parameterization, the sensor adjusts the switching point to the medium and detects it reliably. This ensures maximum flexibility with minimum set-up times.

Unaffected by adherence

Even adherence, which occurs with pasty materials, does not affect the performance of the sensor. It adjusts the switching level without the need for any parameterization even in the case of adherence, thus increasing process safety.

Optimized for cleaning processes

During cleaning processes, such as CIP cleaning, sensors frequently switch incorrectly as they cannot differentiate between the process media and the cleaning media. The CleverLevel® PL20 masters this challenge by ignoring cleaning media such as caustic soda solution and acids during the cleaning process.

Interested? In our video you will learn everything about point level detection without parameterization

www.baumer.com/adaptive
Added value with an additional analog output.

In addition to the switching signal, analog values ranging from 4 … 20 mA can be read out. This way, in addition to the point level, other measured values are also available that provide additional information about the process.

Media differentiation

With the 4 … 20 mA signal, media such as oil and water or different powders can be differentiated. With the help of the Baumer FlexProgrammer, these can also be presented graphically when setting the system. It is also possible to invert the measured analog values.

<table>
<thead>
<tr>
<th></th>
<th>mA</th>
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<tbody>
<tr>
<td>Water</td>
<td>18.46</td>
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<tr>
<td>Oil</td>
<td>14.90</td>
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<td>Air</td>
<td>8.27</td>
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Cleaning process evaluation

The 4 … 20 mA analog signal can be used to evaluate whether the sensor tip has been cleaned or if remnants of the medium are adhered to it. In addition it is possible to detect whether the single cleaning steps have taken place.

Moisture determination

The analog signal can be used to determine the moisture content or degree of dryness of the medium, especially in the case of solids and granulates.
One sensor – different designs.

**Various connection options**

M12 stainless steel, M12 plastic with LED, cable gland stainless steel with LED

**Different lengths**

35 mm – 250 mm

**Different versions**

Compact industry variant, hygienic field housing or Baumer Hygienic Connection (BHC), Field housing with sliding connection, high temperature variant with cooling neck

More configuration options on the website: www.baumer.com/cleverlevel
Your application – our solution.

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<th>Functional overview</th>
<th>Typical application</th>
<th>Trigger variants</th>
<th>CleverLevel® LBFS</th>
<th>CleverLevel® LBFH/LBFI</th>
<th>CleverLevel® PL20</th>
<th>CleverLevel® LFFS</th>
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<td>For all point level applications, especially suited to separating layer detection</td>
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<td>Multi-colored LED status indication</td>
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<td>Cable screw connection</td>
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More about IO-Link www.baumer.com/io-link-process-automation
The perfect partner for industrial and hygienic applications.

Reliable even in challenging settings

The *CleverLevel®* series complies with the requirements of process automation and the specifications for mobile systems and marine applications. Even in explosive areas, we offer the appropriate solution with the ATEX-certified level switches.

Highest food safety coupled with maximum overall system effectiveness

With their hygienic design and the use of high-quality materials such as stainless steel and PEEK, our sensors comply with the requirements of the food, beverage, and pharmaceutical industry while being in line with relevant standards and directives:
Suitable for every type of process — easy to integrate into existing or new systems.

The sensors from Baumer are suitable for almost all process connections. Thanks to our more than 40 connection types, you do not have to change your system design at all.

Welded sleeves for integration into new systems

A large number of adapters for easy integration into existing systems

Read more in our Whitepaper [www.baumer.com/connection-guaranteed](http://www.baumer.com/connection-guaranteed)

Hygienic design from Baumer

Based on its many years of experience, Baumer has created a process connection that complies with the specifications of the food industry and allows easy dead space-free cleaning. The Baumer hygienic connection (BHC) is an example of how clever design can help reduce the bacterial contamination in your processes and actively contribute to food safety.

Tri-Clamp  
Baumer Hygienic Connection
Process sensors from Baumer – your partner for every measurement task

Pressure measurement
Level measurement
Conductivity measurement
Flow measurement
Temperature measurement

Accessories
Adapters and weld-in sleeves
Cables and adapters
Interfaces

More information about our level sensors can be found at: www.baumer.com/level

Find your local partner: www.baumer.com/worldwide