

# Adaptable level measurement with ultrasonic technology

Reliable detection regardless of interfering components and in confined spaces

## At a Glance

- Reliable measurement of flat and irregular surfaces
- Independent of optical properties of the media
- Adaptation of the sound beam without loss of range
- Interference can be suppressed
- Space-saving design for confined spaces
- IO-Link allows easy commissioning also via remote access



## The Application

Liquids and free-flowing solids are held in tanks or similar containers for processing. To ensure that processes can run without interruption, replenishment must correspond to consumption and be triggered in a timely manner. Continuous monitoring of the tank level provides the consumption data and limit values for this purpose. The historical information is available for analysis and long-term planning.

## The Goal

The sensor should be able to detect different solid and liquid media, regardless of their physical or optical properties, even with irregular surfaces. It must detect transparent and colored liquids as well as solid granules. The measurement must not be affected by the harsh conditions of an industrial environment or by the interior of the tank. The sensor itself must be small to be well-suited for confined spaces. To avoid contact with the media, it should ideally be possible to install the sensor outside the tank and without major modification efforts. This also requires that small openings in the tank lid are sufficient for level measurement. Depending on the medium and ambient conditions of the application, a suitable protection class is also required.

## The Solution

UC18GS series ultrasonic sensors reliably detect the tank level of liquids and granules, regardless of their color and other optical properties. A small opening in the tank cap is sufficient for installation. The diameter of the cone-shaped sound beam can be adjusted for the target area. It strikes the surfaces of the medium over a wide area. In the case of irregular or moving surfaces, the sensor determines an average value and thus indicates the actual level - instead of a potentially distorted punctual value.

Disturbance variables such as support struts or other objects reaching into the measuring field are suppressed by software (PACTware). The level is precisely detected even in the suppressed area. The sound beam radius can be easily adjusted with push buttons on the instrument itself or via software. The range is not affected by this, the level is always reliably detected in the measuring range.

## The Benefits

The sensor has an IO-Link interface and can be parameterized via the controller. Physical access to the sensor is not necessary. Push buttons are available for setting the output configuration and sound beam width directly on the device. The compact device offers a wide range of functions with the smallest dimensions, including interference target suppression, configurable sound beam, automatic synchronization, minimum dead band, IO-Link and infrared interface as well as push buttons for basic settings. Due to its small dimensions, the sensor is suitable for installation in confined spaces; no adjustments to the tank are necessary. Users also benefit from Pepperl+Fuchs' comprehensive application know-how and future-oriented sensor solutions.

### Technical Features

- Measuring range up to 1000 mm
- Very small dead bands of 30 mm resp. 70 mm
- Interfaces: IO-Link 1.1, infrared interface IrDA
- Output types: 2x push-pull switching output or 1x push-pull switching output and 1x analog output (current/voltage)
- Ambient temperature: -25 to +70 °C
- Degree of protection: IP67

