



Online Sludge Level Measurement

Measuring . Monitoring . Controlling

The sludge level is the boundary of settled sludge to the projecting turbidity or clear water, wherein the location of the sludge level is specified at the distance to the water surface (sludge level depth), or as distance from the tank bottom (sludge level).

The sludge level plays primarily a role in the area of wastewater treatment, water treatment and also in the process analysis. Accurate knowledge of the location of the sludge is especially important in process stages of phase separation. The sensor can be used in clear, turbid and heavily polluted liquids with a high solids content. The newest product, the digital sludge level sensor IFL 700 IQ combines advanced technology with user-related benefits.

Online sludge level measurement

- Municipal and industrial wastewater
- Water treatment
- Industrial process media



NEW

Sludge level

Efficient sludge control and monitoring of treatment plants

Sludge level measurement is a very common application in wastewater treatment:

Typical measurement locations in a wastewater treatment plant are pre-sedimentation, thickener and post-sedimentation. The process tanks of the pre-sedimentation and post-sedimentation specifically can be designed very differently. Generally circular and rectangular, elongated tanks can be found. The sludge settles in these tanks. Skimmers ensure that the sludge collects in hoppers until it is ultimately removed. The sludge level measurement primarily supports

- The optimization / control of the (primary) sludge extraction
- The management of the return sludge
- Monitoring of the settling behavior
- The prevention of sludge loss

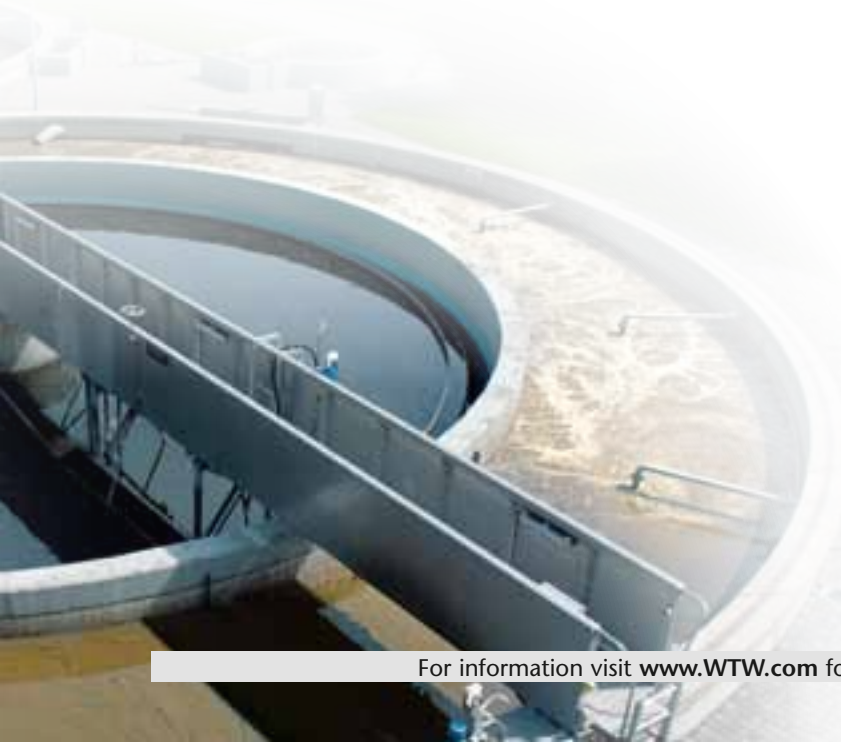
The latter can sometimes lead to exceeding limits in the drainage. A costly scenario, which must be prevented.

Reliable ultrasonic measuring principle

The IFL 700 IQ is based on the ultrasonic measuring principle, wherein the determination of the sludge level over the duration of the echo is determined. Unlike optical sludge level measurement systems, this continuous measurement principle offers important benefits that are shown by lower capital and operating costs, less maintenance and higher data availability.



The non-contact stripper keeps the ultrasonic generator free from air bubbles and outgrowth



Parameter section

Dissolved Oxygen

pH/ORP

Conductivity

Turbidity/
Suspended Solids

Nitrogen

Carbon: COD/TOC/
DOC/BOD/SAC

Phosphate

Sludge level

IFL 700 IQ

- Intelligent signal processing
- Ready-to-go
- Detailed display of echo profile
- Maintenance-free cleaning system



Intelligent signal processing

Measurements are frequently affected by additional interference reflections, the origins of which stem from fixed or mobile processing structures and process activities.

Constant interference reflections can be quite easily taken into account by limiting the measurement range as required. Temporary events, however, such as moving skimmers can be blocked out by using conventional methods, such as signal filtering or smoothing. At this point, WTW is setting new benchmarks in the signal processing with the IFL 700 IQ. The sensor has a special pattern recognition and can thus distinguish between the sludge level and unwanted signals. Using the automatic analysis and self-learning function, the undesired sequences can then be faded out automatically during the measurement mode. As a result, reliable measurements are always available to the user.

Ready-to-go

The requirements for the settings for the normal operation are minimal. The system provides the first measurement results after entry of the tank's depth and the immersion depth of the sensor. For difficult applications, additional optional settings can be used that support purposeful the user in his application.

Detailed display of echo profile for visualization

The echo profile on the display contains detailed information on the complete water column below the sensor down to the ground. Settings of the sensor can be made even more easily.

Maintenance-free cleaning system

The IFL 700 IQ has a cleaning system of high quality materials such as titanium (shaft, sealed several times) and Grivory (scraper). Because of the technical design, this system is maintenance free. An annual replacement of seals or the scraper is not required. The cleaning cycle can be set individually in the system. The necessary cleaning frequency is automatically adjusted by the sensor.

For the operation without air bubbles or contamination, the version without a scraper is recommended (IFL 701 IQ).

Display of an echo profile



Accessories

Special equipment for sludge level sensors IFL 700/701 IQ enables the smooth operation of the sensors in the presence of moving surface scrapers, which are often encountered in rectangular sedimentation tanks. The folding or deflector fittings IFL D provide the sludge level sensor with optimum protection and allows the passing scrapers to pass without effort. With the railing assembly IFL RM (can be combined with IFL-D), the sensor can also be placed over the settling hoppers at a greater distance from the edge of the tank.



*Application of the folding fitting IFL D in conjunction with the railing installation IFL RM for moving surface scrapers.
View: sensor in maintenance position (lockable)*

| Technical Data IFL 700 IQ | |
|------------------------------|---|
| Measuring method | Ultrasonic echo measurement |
| Measuring range | 0,4 m – 15 m |
| Resolution | 0,01 m |
| Accuracy | 0,1 m |
| Signal filters | Yes |
| Flow speed | Max. 4 m/s |
| Physical dimensions | Length 442 mm; max. diameter 105 mm |
| Weight | Approx. 3.6 kg |
| Immersion depth | min. 5 cm; max. 3 m |
| Protection class | Sensor with SACIQ cable connected: IP 68; 0.3 bar |
| Pressure resistance | The sensor with connected SACIQ cable complies with the requirements of article 3(3), 97/23/EU guideline. |
| Permitted pH range of medium | 4 ... 12 |
| Permitted temperature range | Medium: >0 ° ... +50 °C, Storage and transport: -5° ... +50°C |
| Materials | Shaft and baseplate: stainless steel 1.4571 Plug head and transition unit: POM Ultrasound unit: PVC-C Cleaning system: Grade 2 Titanium (shaft), Grivory |
| Equipment safety, Standards | EN 61010-1; UL 61010-1; CAN/CSA C22.2#61010-1 |
| Electric data | Nominal voltage 24 VDC, provided via the IQ SENSOR NET system |
| Power consumption | 5.5 W, operating with MIQ / Blue PS: 3.0W; without a purification system (P 701 IQ): 3.0 W |
| Certifications | CE, cETL, ETL |
| Usable System | IQ SENSOR NET System 2020 XT |

| Ordering Information | | Order No. |
|----------------------|--|-----------|
| IFL 700 IQ | Digital ultrasonic sludge level sensor with automatic cleaning system | 481 200 |
| IFL 701 IQ | Digital ultrasonic sludge level sensor | 481 201 |
| Accessories | | Order No. |
| IFL-D | Folding or deflector fitting for sludge level sensors IFL 700/701 IQ when used with surface scrapers | 481 205 |
| IFL-RM | Railing assembly for sludge level sensors IFL 700/701 | 481 207 |



Further Accessories see brochure "Product Details"