

## LOG\_aLevel

### Autonomous Remote Sensing of Water Level and Waves

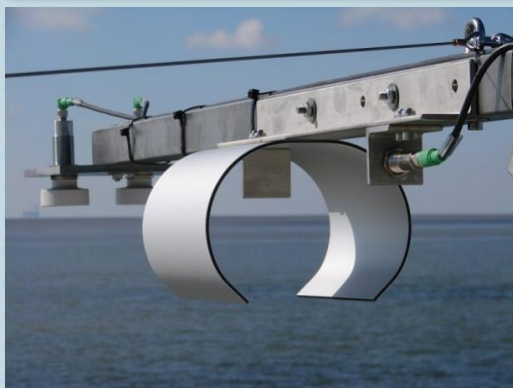
The LOG\_aLevel-System is a reliable and robust remote sensing system for a wide array of applications on almost every location (inland water, coastal zone, offshore). A wide range of different narrow-beam ultrasonic or radar sensors can be utilized, leading to large range of possible measuring ranges. Advanced sensor technology enables to resolve each individual wave providing the foundation for a highly precise and accurate evaluation of water levels and kinds of water surface dynamics. Due to a dedicated speed of sound measurement utilizing a reference track all systems are calibration-free. With no moving parts, the systems are maintenance-free. These advantages, as well as the outstanding reliability even under extreme environmental conditions lead to a low cost of ownership.

A LOG\_aLevel is a highly modular system and thus can be tailored to very specific customer requirements. It can be equipped with different options in power supply and additional sensors. Almost all kind of hydrological-, meteorological or hydrographic sensors for a complete environmental measurement station can be incorporated. These advantages lead itself to compact, easy to deploy systems for self-sufficient operation. Furthermore, we can provide measuring networks by using almost all kinds of data transmission at the stations followed by data collection at a database, data processing, as well as reporting and visualization.



*A LOG\_aLevel station with a long range ultrasonic sensor, reference track and additional meteorological sensor, located at Red Sea. This unit is solely powered by a vertical solar panel.*

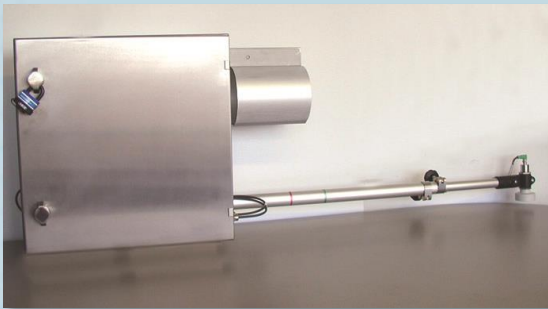
### Standard System



*Close-up of a long range ultrasonic sensor with the shielded REF300 reference track in the foreground.*

- Stainless steel housing, IP 66, lockable, size: 30x30x20 cm (or 50x50x20 cm)
- Ultrasound sensor ULL6080, IP 68, 6 m measuring range (various options)
- REF300 reference track for dedicated speed of sound measurement
- Controller module for signal processing, sensor control, data acquisition including RTC
- RS232/RS485 data interface
- Power supply 12 V DC
- LOG\_aLevel Windows software for system set-up, online-monitoring, visualisation, managing, data storage and export

## Application Examples

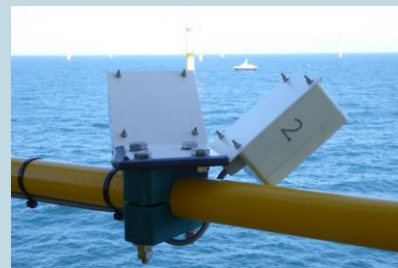


Compact system for temporary deployment: **LOG\_aLevel Mobile**



left: Water level measurement at a river in France; right: comprehensive water level and monitoring station at the North Sea in Germany

- Harbor and terminal management, ship induced waves
- Local tide analysis and prediction system with General Acoustics TidePredictor software
- Storm tide, flood and tsunami measuring networks, local event alerting
- Hydrology and environmental monitoring
- Wave monitoring and analysis, spectral wave energy analysis
- Temporary level gauge to support dredging surveying and construction works
- Spectral wave energy analysis
- Water reservoir management
- Load determination for hydraulic engineering
- Wave measurements from jack-ups and rigs
- Server-based fleet management networks incl. web portal (e.g. ferries, supply vessels,...)



Useful Addition:  
Evaluation of water surface velocity with a radar doppler measurement.

## Options

- Various ultrasound and radar sensors for different measuring ranges
- Data logger incl. 4GB industrial grade flash card (sufficient for 24 months of 5Hz data)
- Environmental / redundancy sensors e.g., wind gauge, temperature, humidity, ombrometer, pressure, conductivity, 2D current meter, etc.
- Radio Data Modems: 869, 900, 2.4GHz (licence free), or licensed UHF/VHF with RS 232 interface
- GSM/GPRS data transmission to dynamic or fixed IP
- Modem or ethernet-module LAN/WLAN – connectivity
- Digital display for direct level reading
- Integration into SCADA systems/Modbus, AIS AtoN
- Current loop 4-20mA output
- Wind turbine up to 350W, Solar panel up to 180W<sub>p</sub>
- 12V buffer batteries up to 200Ah (AGM type)
- Power supply 230/110 VAC; overvoltage protection
- GPS-Time module (PPS; drift free 1ms accuracy)
- Data server, additional Windows application clients
- Client services for website, (spectral) wave parameters, export data streams, visualizations and alerting
- TidePredictor Software for Tide Analysis and Prediction