

► Services for the water and wastewater industry

Solution and product related services

- **Expert consultation** during the design phase
- On-site **commissioning and training**
- **Service Level Agreements (SLAs)** consisting of spare parts management, emergency response and on-site repair, maintenance, remote support, 24/7 service hotline
- **Periodical inspection, validation and re-calibration**
- **Metrological accreditation** according to local legal requirements
- **CFD (Computational Fluid Dynamics) analysis** of instrumentation and piping layout



Planning and service tools



- **myDevice – Smart service tools**
 - OPTICHECK Mobile, DTM, Master for **parametrisation, commissioning and verification** incl. test reports
 - PICK for **all device-specific assets** via serial number or AutoID
 - ICV Videos for **step-by-step tutorials**
 - KROHNE Academy online for **24/7 online course** availability
- **Internet-based planningtool**
 - Easy creation of **precise tender documents** (Word, Excel or GAEB)
 - For **flow, level, analysis, pressure and temperature** instrumentation
 - Combined with comfortable **device configuration**



Generation of tender documents:
planningtool.krohne.com

Training

- **In-house trainings or free KROHNE Academy seminars**
 - Automation topics such as **energy efficiency** in water and wastewater plants, metrological **requirements, dimensioning** of devices and many more
- **KROHNE Academy online – free online eLearning platform**
 - **Full audio** courses, explaining measuring technology without relating it to specific manufacturers
 - Live **online seminars**

Visit academy-online.krohne.com



► Products, Solutions and Services for the water and wastewater industry



Visit
www.krohne.com/waterandwastewater
to learn more about products, solutions and services for the water and wastewater industry





Water & Wastewater

Contact

KROHNE Messtechnik GmbH
Ludwig-Krohne-Str. 5
47058 Duisburg
Germany

Tel.: +49 203 301 0
Fax: +49 203 301 10 389
waterandwastewater@krohne.com

The current list of all KROHNE contacts and addresses can be found at:
www.krohne.com

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► KROHNE Water & Wastewater – Your partner for measurement application

With more than 50 years of experience and application know-how in the water and wastewater industry, our Industry Division KROHNE Water & Wastewater provides highly sophisticated, market-oriented and competitively priced measuring devices and customised and fully equipped solutions up to integration into the control system. Our team comprises consultant engineers and specialists who assist you from early planning stages through to commissioning. KROHNE has developed a large and dedicated product portfolio for the water and wastewater industry with approvals from potable water to Ex. Our (battery-powered) electromagnetic water meters up to DN3000/120" have extended functionalities – for example providing additional parameters or for use in leakage detection. The product range includes dedicated level transmitters for vessels of any size, flowmeters for partially filled pipes and biogas, analytical sensors and systems for process monitoring and quality control.

► Solutions for the water and wastewater industry

Flow metering solutions

- **Custody transfer metering systems for produced water**
 - **Pre-installed** measurement skid with flowmeters and valves
 - **Pre-calibrated** to meet custody transfer regulations (e.g. OIML R49, MID MI-001)
 - Completely designed, engineered and manufactured **according to customer specifications**
- **Modular flow control and data transfer cabinets**
 - Cost effective, based on the SUMMIT 8800 flow computer, PLCs and UPS systems



Monitoring solutions

- **PIPEPATROL – Pipeline management**
 - **Pre-installed** measurement skid with flowmeters and valves
 - Modules for **leak, theft and line-break** detection, **batch tracking** and monitoring of **tightness** and **lifetime stress**
 - **E-RTTM** technology: Complete and **high-sensitivity** protection of water pipelines
 - From **single software applications** to **full packages** including instrumentation (flowmeters, pressure transmitters, temperature assemblies), **cyber-security** and **field data acquisition**



Wireless and remote metering solutions

- Remote monitoring of **water wells** without power supply
- **Potable water consumption** monitoring and **water loss** detection
- Remote monitoring and process control in **drinking water distribution networks**
- Remote flow monitoring in **District Metering Areas**
- Remote monitoring of **sedimentation processes**
- Remote level monitoring of **water towers and pumping stations**
- Remote monitoring of **drinking water disinfection**



► Products for the water and wastewater industry – Excerpt from process instrumentation portfolio

OPTIMASS – Coriolis mass flowmeters

- EGM™ enables measurements of inhomogeneous mixtures, media with fibres, or solid or gas entrainment
- Not susceptible to installation effects
- Wireless commissioning, verification and monitoring with OPTICHECK Flow Mobile, OPTICHECK DTM and OPTICHECK Master



OPTIFLUX, WATERFLUX, AF-E and TIDALFLUX – Electromagnetic flowmeters

- Electromagnetic water meters from DN2.5/1/10" up to DN3000/120", with extended functionality e.g. to gain additional parameters or for use in leakage detection
- For all applications with conductive liquids (especially for high bubble content, high solids content and pulsating flow)
- From basic to demanding flow and custody transfer (CT) measurements
- The OPTIFLUX x300 electromagnetic flowmeters are now approved for installation with 0D straight inlet and 0D straight outlet with a measurement uncertainty of 1%
- Commissioning, verification and monitoring with OPTICHECK DTM and OPTICHECK Master



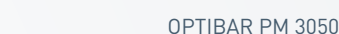
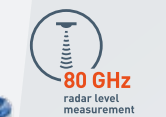
OPTISONIC – Ultrasonic flowmeters

- Various designs: from clamp-on devices to multipath inline flowmeters
- Biogas version for biogas, landfill and sewage gas applications, with the option to output flow and methane
- District heating version for thermal energy measurement and heated water
- Portable version available with battery-powered meter, for on-site verification of process flows or inline meters at any location



OPTITEMP – Industrial temperature assemblies

- Very good repeatability and long-term stability
- Standardised and customer-specific temperature assemblies
- Compact, fast and precise measurement
- Measuring inserts, RTD (Pt100) or thermocouple (K or J)
- In-situ verification



OPTIFLEX – TDR level transmitters

- Guided radar level transmitters for basic liquid applications
- Intuitive quick setup procedure
- Measuring range: 0.73...20 m; 2.4...65.62 ft
- Three types of probes which can all be shortened on-site

OPTIWARE – FMCW radar level transmitters

- 2-wire 10, 24 and 80 GHz radar level transmitters
- Continuous, non-contact measurement of distance, level, volume and reflection of liquids and solids
- Open-channel flow measurement and floodwater alarms
- Not affected by process conditions, e.g. foam, vapour, agitated surfaces, changes in pressure, temperature or density

SMARTPAT – Digital analytical sensors

- Direct connection to process control system, via 4...20 mA/HART®7; for pH, ORP, conductivity

OPTISENS – Analogue analytical sensors

- For pH, ORP, turbidity, total suspended solids, dissolved oxygen, disinfectant, conductivity; various assemblies e.g. flow through, retractable, immersion, inversion

OPTISYS – Analytical measuring systems

- Preconfigured analytical systems with sensor(s), transmitter, mounting assembly or process connections; for potable water disinfection, monitoring of sludge blanket level and sedimentation, chlorine or turbidity analysis

OPTIBAR – Process and differential pressure transmitters

- Ceramic diaphragm with the highest overload and chemical resistance for maximum robustness and safety
- Submersible probes with ceramic diaphragm, HART® communication and long lasting TPE cable

Product highlights

WATERFLUX Series – Battery-powered water meters

- Installation 0D inlet and 0D outlet sections
- Integrated flow, pressure and temperature measurement
- Flow-optimised pipe cross section – Thanks to the rectangular cross section, special plate coils are used to provide a homogeneous magnetic field at all positions, making measurement independent of the flow profile



TIDALFLUX 2300 – Flowmeter for partially filled pipes

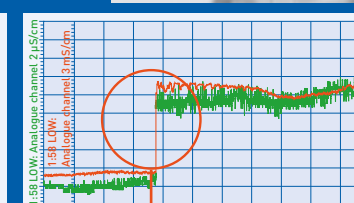
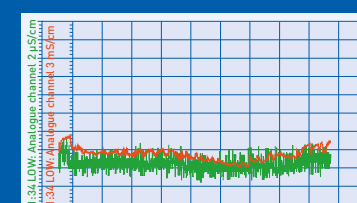
- ATEX zone 1 certification
- Simultaneous transmission of flow, level, conductivity and diagnostic data with PROFINET communication
- Accurate and cost-saving alternative to open channel systems



	KROHNE	Open channel	Other
TIDALFLUX 2300	Weir/flume system	Ultrasonic in-pipe transmitter system	
DN200 (200 m³/h)	200 m³/h	200 m³/h	200 m³/h
Initial investments			
Installation of flowmeter (€65/h)			
On-site calibration (€65/h)			
Site preparation for inspection			
Yearly maintenance as specified by supplier (€65/h)			
Total cost of ownership 5 years	€5800	€6000	€6550
Total cost of ownership 10 years	€5800	€7700	€8300

Integrated conductivity measurement

- In all OPTIFLUX, TIDALFLUX and WATERFLUX 3X00 series (except WATERFLUX 3070)
- Option to calibrate this on-site
- Various output and transmission options: 4-20 mA, Profibus, Profinet or Modbus



Immediate response time

Analytical panels

- Completely pre-assembled panels made of plastic or stainless steel
- Concept with digital SMARTPAT sensors, analogue OPTISENS sensors and/or OPTISYS systems
- Continuous monitoring of pH, conductivity, temperature, chlorine, chlorine dioxide, ozone, oxygen and turbidity
- Standardised multiparameter signal converter

