Instrumentation for the water & waste water industries

Enhanced plant performance, efficiency, reliability
Talk to ABB first

ABB has more expertise in water & waste water applications globally than any other supplier. Based on this experience, we have refined and developed the performance of our portfolio of intelligent instrumentation products to ensure you get a solution that meets your precise requirements every time.

Getting the best levels of efficiency from your plant and processes calls for reliable, accurate instrumentation. Equally important is being able to count on access to an intelligent, informed support network that can assist you throughout all stages of your process, regardless of your location.

A heritage to be proud of

ABB Instrumentation's ability to satisfy customers' needs has never been greater, being built upon the leading names and brands in the automation world: Bailey, Bush Beach Engineering, Fischer & Porter, Hartmann & Braun, Kent, Schoppe & Fæser, Sensycon, Taylor, TBI-Bailey.

Industrial IT - Optimizing your instrumentation assets

To help you improve the efficiency of your entire business and production process, ABB is committed globally to Industrial IT. It involves the development of systems and products guaranteed to inter-operate and communicate using the same information standard within a single digital architecture.

Industrial IT and Asset Optimization with ABB instruments provide features and benefits across the full scope of our offering. Intelligent field instruments not only provide highly accurate process measurement data, but process information is available at the click of a mouse for predictive maintenance, advanced trouble shooting, optimized spares handling, hence increased product availability and process security.

A range of fieldbus opportunities

ABB is actively involved in the development of fieldbus policy direction and technical standards and supports the major process automation protocols in widespread use throughout industry. With our wide experience and expertise, we can cater to a broad spectrum of fieldbus options, enabling us to meet your exact requirements. The current generation of ABB fieldbus devices and systems lets you choose both the most suitable devices available and the most appropriate system for your application, including PROFIBUS, FOUNDATION Fieldbus and HART.

Instrumentation Services

Our broad scope of services lay the foundation for end-to-end support for your enterprise. ABB Instrumentation Services delivers the knowledge and global experience required to keep your assets operating at peak reliability and accuracy. ABB provides a full scope of services from start-up and commissioning through lifecycle support.

- Installation and Commissioning
- Preventative Services
- Calibration Services
- Maintenance
- Consulting
- Training
- Migration/Upgrades
- Parts and Repair

www.abb.com/industrialit

www.abb.com/service
ABB is your partner throughout the entire water cycle, from extraction and treatment through to distribution and the management and reprocessing of waste. We supply an extensive range of instrumentation equipment and systems for use throughout all stages of the cycle.

**Pumping Station**
- Electromagnetic flow
- Pressure
- Level (Hydrostatic)
- Controllers
- Recorders

**Stormwater**
- Electromagnetic flow
- Flow - partially filled pipes
- Indicators
- Controllers
- Recorders

**Pressure Boosting**
- Electromagnetic flow
- Pressure

**Treatment Plant Inlet**
- Electromagnetic flow
- Variable area flow
- Ammonia
- Conductivity
- Level
- pH
- Phosphate
- Redox
- Turbidity
- Controllers
- Recorders

**Primary Sedimentation**
- Electromagnetic flow
- Thermal mass flow
- Temperature
- Pressure
- pH

**Aeration & Digestion**
- Electromagnetic flow
- Thermal mass flow
- Dissolved oxygen
- pH
- Phosphate
- Controllers
- Recorders

**Final Sediment Tank**
- Electromagnetic flow
- Thermal mass flow
- Temperature
- Pressure
- Oxygen (Zirconia)
- Controllers
- Recorders

**Sludge Incineration**
- Electromagnetic flow
- Pressure
- Ammonia
- Conductivity
- Dissolved Oxygen
- pH
- Redox
- Turbidity

**Residential Use**
- Electromagnetic flow

**Industrial Use**
- Electromagnetic flow
- Flow - partially filled pipe
- Pressure
- Ammonia
- Dissolved Oxygen
- Fluoride
- pH
- Redox
- Controllers
- Recorders

**Water Storage**
- Electromagnetic flow
- Pressure
- Level
- Turbidity
- Controllers

**Water Intake**
- Electromagnetic flow
- Temperature
- Pressure
- Ammonia
- Conductivity
- Dissolved organics
- Level
- Turbidity
- UV nitrate

**Sedimentation/Filtration**
- Electromagnetic flow
- Differential pressure
- Pressure
- Dissolved organics
- Level
- Turbidity

**Pumping Station**
- Electromagnetic flow
- Pressure
- Level
- Controllers

**Borehole**
- Electromagnetic flow
- UV nitrate
- Recorders

**Water Intake**
- Electromagnetic flow
- Temperature
- Pressure
- Ammonia
- Conductivity
- Dissolved organics
- Level
- Turbidity
- UV nitrate

**Coagulation**
- Electromagnetic flow
- Dissolved organics
- pH
- Controllers
MagMaster

MagMaster is suitable for all applications found in the water industry from potable to waste water treatment. Its buriable sensor eliminates the need for meter pits or chambers and reduces installation costs. With a wide flow range and high accuracy, MagMaster improves control and quality of water distribution networks and water treatment works.

- Size range DN15 to DN2600 (0.5 to 104in)
- 1500:1 flow range
- Accuracy to 0.15%
- Thermal mass flowmeter
- Approved for use in hazardous areas
- Calibration can be verified in situ using ABB’s CalMaster calibration verification device

MagMaster LoFlo

MagMaster LoFlo utilizes the MagMaster’s proven electronic transmitter with a new sensor design which reduces sensitivity to flow profile disturbances. This results in outstanding performance in less than ideal installation conditions. Fluid velocity is also increased through the sensor giving extended low flow performance. IP 68 rating and two-year warranty permits the sensor to be buried, eliminating the need for meter pits or chambers and reducing installation costs.

- Size range DN15 to DN600 (0.5 to 24in)
- Bi-directional flow measurement
- Wide flow range with ±0.25% accuracy
- Calibration can be verified in situ using ABB’s CalMaster calibration verification device

Electromagnetic Flowmeter FSM4000

ABB’s electromagnetic flowmeter FSM4000 delivers performance measurement on tough pump metering applications such as heavy sewage and slurry (better than ± 0.5% of rate accuracy). Enhanced AC coil excitation in combination with our new Digital Signal Processing (DSP) provides stable outputs without the need for excessive damping and filtering. Pulsating flow applications as found on chemical skid injection packages can be handled smoothly and accurately with our piston pump operation function.

- Fast response times of down to 50 milliseconds
- Flowmeter primary element available from 1mm to 1000mm (0.04 to 40in) with a variety of process connections including DN or ANSI flanged connections
- Supports PROFIBUS PA, FOUNDATION Fieldbus and HART communications protocols

AquaMaster

A revolutionary single instrument providing a total water management solution for revenue generation, district metering, water distribution, customer billing, leakage control and treatment works.

- Low end accuracy for low night flow measurement - 1000:1 dynamic range
- Integrated flow and pressure logging
- Battery power means no electrical connections are required, reducing installation costs
- Wireless access via GSM for configuration, meter reading and retrieval of logged data
Vortex and Swirl Flowmeter

These flowmeters are particularly reliable for liquids, gases and steam applications due to their innovative DSP technology (digital signal processing). Pollution or deposits will not affect the signal generation when using the vortex measuring method. Applicable for flow measurement of air or non-conductive water in the treatment process.

- Extremely short straight pipe section for the swirl meter
- High accuracy up to 0.5% of reading
- Communication according to HART, FOUNDATION Fieldbus and PROFIBUS

Electromagnetic Flowmeter

AquaProbe

A battery powered, electromagnetic insertion flowmeter for clean water, offering an economic alternative to in-line flowmetering for both permanent and temporary applications. Featuring “hot tap” capability, the AquaProbe can be installed without disrupting the water supply.

- Suitable for use as a portable survey tool or a permanent monitor
- Can be used on pipe sizes 200mm to 8,000mm (8 to 315in)
- Measures flow in both directions
- Wireless access via GSM for configuration, meter reading and retrieval of logged data

Electromagnetic Flowmeter FXP4000

Measures the flow in full as well as partially full pipelines. Used in free surface flow pipelines for metering the rate of waste and mixed water, flow rate measurements in clarifier systems, waste water treatment systems, landfills and canal network management.

- Low cost of ownership - maintenance free
- Long operating life - no moving parts
- No flow restrictions means continuous operation

Electromagnetic Flowmeter FXE4000

High variety of converter housing and the well known EEPROM technology for quick converter interchanging decrease your installation cost.

- Size range DN3 to DN1000 (1/8 to 20in)
- Communication according to HART, FOUNDATION Fieldbus and PROFIBUS
- High variety of process connections
- Accuracy to 0.25%

Thermal Mass Flowmeter

Digital mass flowmeter for use in aeration and digestion applications. The system is supplied with LCD display, integrated gas temperature measurement, totalizer functions and useful diagnostic functions, based on unique DSP technology.

- Digital measuring system PROFIBUS DPV1 or HART communication
- Certified high accuracy
- Very short response times
- Explosion proof versions with ATEX certification

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Variable Area Flowmeter
The VA flowmeters offer a proven and cost-effective solution for measuring liquids, steam and gases at very low flow rates. A wide range of model types ensures there is a suitable flowmeter for any application.
The armoured flowmeter is used for measuring oxidation-air in water treatment or industrial water applications.
- Local indication without requiring external power
- High variety of connection types and measuring ranges
- Protection class IP 67
- Plug-in module concept

Coriolis Mass Flowmeter
Coriolis mass flowmeter for dosing applications and methanol measuring. High accurate device with simultaneous measurement of mass flow and fluid density.
- Flow accuracy up to 0.15%, density up to 1 g/l
- Compact or remote design

Analyzers AX400
High specification, high performance analyzers for the measurement of pH/Redox (ORP) and conductivity.
- Cost effective measurement of one or two parameters in one instrument
- Reduced maintenance with continuous in-line pH diagnostics and auto-water wash/chemical clean
- Problem-free conductivity using auto-compensation of sensor fouling
- On-board PID controller
- PROFIBUS DP or analog communication

Dissolved Oxygen Sensing Systems
High-level ppm measurements for rivers, sewage treatment and process water utilize a 9408 Series immersion, floating ball, or 9408-80 flow-through sensor with AX480 Series instruments.
- Range 0 to 20 ppm and 0 to 200% saturation
- Auto jet wash significantly reduces maintenance
- Integrated PID controller for aeration control
- Dual-input analyzer minimises capital outlay
- Low maintenance, long-life sensor
**Ammonia Monitor 8232**

High specification, high performance analyzers for the measurement of pH/Redox (ORP) and conductivity.
- Low operational costs – long life pump tubing and minimal reagent consumption keep maintenance costs to an absolute minimum
- Automatic two-point calibration ensures continued accurate operation without the need for manual intervention
- On-line diagnostics – provides automatic confirmation of the integrity of performance
- Simple to operate
- On-line diagnostics provide advanced warning of loss of sample or reagents
- Automatic colour compensation - provides accurate performance in demanding applications
- Multi-stream switching option - enables up to six streams to be monitored on one analyzer, resulting in a significant saving in capital expenditure

**Phosphate Monitor 8242**

The ideal system for ensuring compliance with standards governing the protection of potable and waste water.
- Simple to operate
- On-line diagnostics provide advanced warning of loss of sample or reagents
- Automatic colour compensation - provides accurate performance in demanding applications
- Multi-stream switching option - enables up to six streams to be monitored on one analyzer, resulting in a significant saving in capital expenditure

**UV Monitors AV400**

A range of single and dual input dissolved organics and nitrate monitors for use in potable water treatment applications.
- Rugged maintenance-free analyzers
- Reagentless operation – significantly reduces operational costs
- Automatic compensation for:
  - Turbidity on dissolved organics monitors
  - Turbidity and/or dissolved organics on nitrate monitors
- Dual input option provides lower capital and installation costs
- Automatic cleaning enables additional maintenance cost savings

**Turbidity Monitoring System 4670**

Suitable for turbidity monitoring in raw water and effluent discharge applications. The 4670 combines the latest photodiode technology with the power and reliability of the 4600 Series transmitter.
- Eliminates the need for hazardous chemical standards and provides dry calibration for BOTH span and zero
- Prevents fouling - automatic cleaning fitted to all units
- Lower costs - inlet, outlet and drain valves are fitted as standard

**Complete Water Cycle Sampling System**

Complete water quality sampling systems available rack mounted or housed in self-contained monitoring cabins.
- Ensures easy compliance with water quality regulations
- Extended plant life
- Custom built to client specifications
- Rapid installation with minimal on-site costs
- Minimal maintenance and reliable operation
Temperature Transmitters
ABB’s temperature transmitters provide the interface from the temperature sensor to the PLC and offer excellent long-term stability with enhanced self-diagnostic capability.
- 4-20mA, HART, PROFIBUS PA and FOUNDATION Fieldbus versions
- Range of mounting options: head-mounted, DIN-Rail or on rack with field housing (IP66/67)
- Optional display available

Temperature Sensors
ABB supplies a range of temperature sensors for use in a host of environments, including abrasive, high pressure/temperature and high vibration applications.
Range of options:
- Preference program – simple and cost effective
- Standard program – suitable for a wide range of applications
- Customized program – suitable for meeting individual needs
- Available with direct sensor output in 4-20mA, HART, PROFIBUS PA and FOUNDATION Fieldbus versions
- Optional display available

Pressure Measurement
ABB’s 2600T pressure transmitter Series offers one of the most complete ranges of pressure measurement equipment currently available:
- Range of options – available in multivariable, high static working pressure and safety versions
- High accuracy – 0.04% to 0.075%
- Available in 4-20mA, HART, PROFIBUS PA and FOUNDATION Fieldbus versions
- Reduced downtime – high, long term stability
- Complete family of remote seals plus a choice of materials and fill-fluids

Temperature Measurement

Process Controllers
ABB’s range of process controllers set the highest standards in industrial instrumentation. From simple single loop to advanced control options (including feed forward, cascade and ratio control), a controller is available to match any application. Features available in most units include:
- In-built 2 wire transmitter power supply
- Links to central PLC or SCADA systems via MODBUS
- Front plate rated to NEMA 4X/IP 66 protection
- Windows™ based PC Configuration Software intervention

Advanced Videographic Recorders
ABB’s SM Series of advanced videographic recorders deliver the latest in electronic data recording technology and convenience for water industry applications.
- Available in three models, offering from 6 to 36 recording channels
- Flow totalization with automatic generation of detailed flow total logs
- Remote supervision and data access solutions provided via Ethernet communications
- High capacity Compact Flash and SmartMedia memory card options greatly reduce requirement for operator intervention

Chart and Process Recorders
A comprehensive range of paper, process and chart recorders suitable for a wide range of applications. Based on many years practical experience, each model has features and benefits for accurate, reliable recording.
- 1 or 24 trace strip chart recorders
- 4 trace circular chart recorders
- Integrated process control
ABB is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 103,000 people.

www.abb.com/instrumentation

The Company's policy is one of continuous product improvement and the right is reserved to modify the information contained herein without notice.

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