DETECTRONIC

WATER FLOW AND QUALITY MEASUREMENT EQUIPMENT AND SERVICES

SUPPLY | INSTALL | MAINTAIN | MONITOR | ANALYSE | REPORT

DETECTRONIC HAS EXPERIENCED 10 YEARS OF SUSTAINED GROWTH - MATURING INTO A WELL RESPECTED, MULTI-DISCIPLINED WATER MONITORING SPECIALIST WITH A REPUTATION FOR **PRODUCT** AND TECHNICAL EXCELLENCE, PROFESSIONALISM, INTEGRITY AND RESPONSIVENESS.

Our dedication to working in partnership with our customers and our expertise in water and wastewater flow and monitoring, quality monitoring and analysis has positioned us as one of the leading providers in the industry.

Our dedicated **MEICA** (Mechanical, Electrical, Instrumentation, Control, Automation) division provides **design, supply, installation, testing, commissioning** and **maintenance** of all mechanical and electrical systems for all types of MEICA projects.

Detectronic leverages its extensive experience in the private sector to help companies solve complex business challenges with efficiency and quality.

One of **Detectronic**'s key competitive advantages is our DATA CENTRE - a team of specialists dedicated to **near real-time analysis** and **interpretation of data** and delivery of **client reports**.

We are a trusted partner for energy, water utilities, industrial manufacturing, automotive, construction, hospitality and pharmaceuticals operators worldwide. In 2017 we strengthened our operation in Europe, opening a new office in Southern Germany, just 40 minutes from Nürnberg airport.

OUR LOCATIONS

COLNE | YORK | SHEFFIELD | OXFORD | EXETER | BAD WINDSHEIM

WE MAKE WASTEWATER AND WATER QUALITY MONITORING AFFORDABLE AND SUSTAINABLE. WITH OVER 80 YEARS OF ACCUMULATED INDUSTRY KNOWLEDGE, WE KNOW HOW TO DELIVER THE MOST SKILLED AND PROFESSIONAL SERVICE TO EACH OF OUR CUSTOMERS.

DATA SCREENING

Our best-in-class DATA CENTRE is uniquely positioned to monitor your network in near real-time, seven days a week.

As part of a suite of services, our experienced **Data Technicians** will work closely with you to manage your trade effluent efficiently and cost effectively.

PROJECT MANAGEMENT

When you work with **Detectronic** you'll be supported with a **dedicated Account Manager**, providing you with a professional approach to the management of your wastewater.

Each of our **Account Managers** has a wealth of experience within the sector and will work with you to ensure our service operates smoothly.

FIELD SUPPORT SERVICES

Detectronic's engineers regularly receive outstanding feedback for their willingness to 'go the extra mile' and for the respect they show for their work and the environments around them.

MEICA SERVICES

We believe in offering a complete in-house service, which is why at **Detectronic**, our installation services are supported by our specialist **MEICA** division.

With this support network in place you can be assured that your systems are fully supported and any faults are quickly identified and repaired.

WHY WORK WITH **DETECTRONIC?**

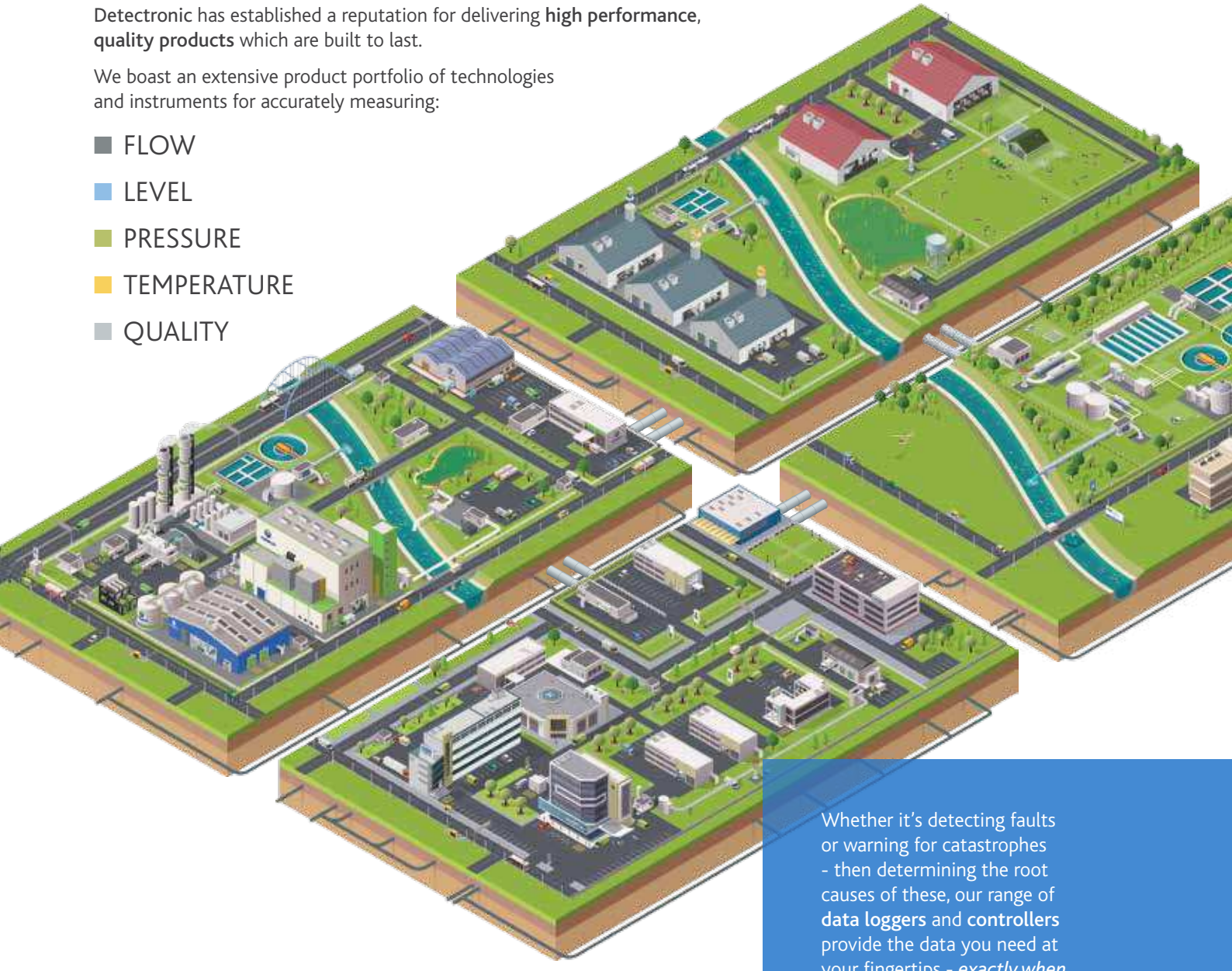
SOLUTIONS

Water is used extensively in industry and is used in large volumes for production processes, added to products, in cleaning operations, heating or refrigeration purposes and for normal sanitation purposes.

Detectronic has established a reputation for delivering **high performance**, **quality products** which are built to last.

We boast an extensive product portfolio of technologies and instruments for accurately measuring:

- FLOW
- LEVEL
- PRESSURE
- TEMPERATURE
- QUALITY



Whether it's detecting faults or warning for catastrophes - then determining the root causes of these, our range of **data loggers** and **controllers** provide the data you need at your fingertips - *exactly when you need it.*

REGARDLESS OF INDUSTRY, PLANT OPERATORS FIND THEMSELVES UNDER INCREASING PRESSURE TO **REDUCE COSTS**, **IMPROVE EFFICIENCIES** AND **COMPLY** WITH INCREASINGLY STRINGENT REGULATIONS.

Process monitoring is important across a range of industries. Heat exchangers are commonly used in power plants and petrochemical industries. Oil leakages at turbines, pumps or within the heat exchanger can result in the cooling water being polluted.

High pressures and temperatures or sensitive processing environments in chemical plants often make grab sampling and offline process monitoring impractical or impossible, necessitating the need for inline monitoring.

In pharmaceutical manufacturing, at-line cleaning verification is a critical process to ensure the prevention of contamination and cross-contamination of residues between manufacturing runs. This is also true for clean-in-place (CIP) processes used in food and beverage manufacturing. Inline monitoring of the rinse water can help reduce water usage, chemical consumption, wastewater costs and process time.

BENEFITS

- DETECTION AND PREVENTION OF PRODUCT LOSS
- OPTIMAL SYSTEM EFFICIENCY AND RELIABILITY
- REDUCED HAZARDOUS CHEMICAL USE
- UNSCHEDULED DOWNTIME PREVENTION
- LONGER EQUIPMENT LIFE
- REDUCED WATER AND ENERGY CONSUMPTION
- IMPROVED SAFETY AND HYGIENE

SOLUTIONS

Flow and Level Measurement

In most operations it is important to know that the right liquid is at the right place at the right time. **Detectronic** offer level monitors to help you monitor water sources, along with a range of flow meters, such as the **ORAKEL Time of Flight** flow meter; which can measure almost any fluid, including water, oils, alcohol, petrochemicals and more as well as being an ideal solution for measuring flow rates in closed pipes.

Quality

Water taken from rivers, boreholes or recycled water can be used as part of the process, including: pre-treatment, clarification, filtration, membrane reverse osmosis (RO), disinfection, boiling and cooling. Some raw water sources can contain trace levels of organics, resulting in corrosion, deposition and scaling. The **ORAKEL System** allows multiple water quality sensors to be added, each measuring different parameters, from pH, conductivity and turbidity, to particle counters, chlorine and COD. Our solutions can help with:

- Analysers and process control
- Chemical dosing systems
- Ultraviolet disinfection system

Engineering

Our in-house engineers can design and provide instrumentation control and automation engineering services to a wide variety of industries. Our experts have successfully delivered turnkey projects for DCS, PLC, HMI and SCADA systems.

Our electrical engineers can design and install cabling and containment, power distribution and all other services needed to ensure instrumentation and telemetry systems are installed safely and to the correct standards.

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THERE ARE TYPICALLY THREE CATEGORIES OF **WASTEWATER**

BLACKWATER
Heavily polluted wastewater, containing high concentrations of faecal matter, food residues, toxic chemicals, heavy metals, etc.

GREYWATER
Low polluted wastewater with residues from processes, such as washing, laboratory processes, laundry and cooling water.

STORMWATER
Rainwater run-off collected from roofs, grounds and paved surfaces.

Municipal wastewater treatment facilities are not equipped to treat heavily polluted wastewater and therefore it must be pre-treated before being discharged.

A consent licence issued by the local authority will contain maximum limits of the key parameters specific to the plant which a facility must adhere to.

These will typically include:

- Flow
- Temperature
- pH
- Total suspended solids
- COD
- BOD

More and more companies are realising that wastewater can also be a valuable water resource. There are many good reasons to consider reusing biologically treated municipal and industrial wastewater, including:

- Increase water resources
- Reducing the intake of new water around areas of water scarcity
- Limiting effluent flow loads to sewers

Reclaimed water can be used for numerous applications, such as: industrial process water, cooling towers and wash water; surface irrigation of crops, vineyards and golf courses; recreation lakes, wetlands, wildlife habitat and ground water recharge.

BENEFITS

- REGULATORY COMPLIANCE OF TRADE EFFLUENT
- REDUCED ENVIRONMENTAL FOOTPRINT
- MAXIMISING WATER REUSE
- MONITOR CHEMICAL DISINFECTION LEVELS
- DETECT OPERATIONAL BREAKDOWNS
- EARLY POLLUTION WARNING

SOLUTIONS

Waste Water Treatment Plant Inlet Monitoring

Continuously monitoring effluent flow and load entering a waste water treatment plant, will help provide insights to optimise process performance and running costs. The **ORAKEL** provides a modular solution for monitoring flow, pH, conductivity, TDS, SS and COD/BOD with just one control unit.

Biological Treatment

Our systems can be used to monitor parameters such as organic load, dissolved oxygen, conductivity and pH, as well as total dissolved and suspended solids, to help monitor and control the efficiency of the biological treatment.

Total Dissolved and Suspended Solids

Monitoring dissolved and suspended solids independently at the entrance to the plant provides a whole background of information on the upstream process and how efficient things are running. This data, together with production schedules is used to produce water resource efficiency plans for the whole site. Other parameters such as pH and temperature are used to align the algorithms for reporting uncertainty and overall efficiency.

MUCH LEGISLATION SURROUNDS THE MANAGEMENT AND **PROTECTION OF WATER RESOURCES** AND **WATER QUALITY** WITH COMPANIES COMING UNDER INCREASING PRESSURE TO MANAGE THEIR WASTEWATER DISCHARGES MORE EFFICIENTLY.

Most plants will be interested in staying **within the consent levels** for biological oxygen demand (BOD), chemical oxygen demand (COD), various nutrients and total suspended solids (TSS).

Changes in influent conditions caused by load shocks, temperature changes, increases in production, modifications in manufacturing operations, spills, cleaning water surges and operation malfunction can all lead to **sudden variations** in BOD, COD and nutrients.

Continuously monitoring final effluent prior to discharge using the **ORAKEL System** can significantly minimise the risk of pollution and resulting fines.

BENEFITS

- REGULATORY COMPLIANCE OF TRADE EFFLUENT
- MINIMISED RISK OF POLLUTION
- MINIMISED RISK OF FINES AND SURCHARGES
- REDUCED DISCHARGE LEVELS
- LOWER WATER DISCHARGE COSTS

SOLUTIONS

Flow Monitoring

Final discharges can leave through a final effluent channel, a river discharge point or a treatment plant outlet and Detectronic have a range of flow meters to accommodate most situations.

Within some consent licences there will be a requirement to have MCERTS accredited monitoring equipment in place. The **MCERTS MSFM** is particularly suited to this application and can monitor the flow and temperature of the water.

Quality Monitoring

Up to 16 flow and quality sensors can be connected to the **ORAKEL**, making this modular system incredibly versatile and a cost effective solution for monitoring the required parameters, including: pH, Conductivity, BOD/COD, Total Suspended Solids (TSS), and Total dissolved solids (TDS).

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MCERTS MSFM

A highly accurate, self-contained, battery-powered **ultrasonic area velocity flow meter** that uses velocity, depth and temperature to determine flow rates.

MSFM

ATEX and IECEx IS certified **3 channel multi-sensor flow monitor** that provides remote flow measurement for water and wastewater applications, including: Sewer Networks, Combined Sewer Overflows (CSOs), Open Channels, Storm Sewers and Industrial Effluent Discharges.

MSFM LITE

Certified to ATEX and IECEx Zone 0, **MSFM Lite**'s ultrasonic level monitor can be used for remote monitoring of wells and other water sources, as well as tank levels located in potentially explosive atmospheres.

It uses sophisticated power saving technology to provide up to 7 years battery life - significantly longer than other manufacturers and more cost-effective than traditional, hard-wired mains-powered ultrasonic sensors.

PRESSURE TRANSDUCER INTERFACE

ATEX Zone 0 certified PTI pressure sensor connects to either the **MSFM Lite** or the **MSFM** and allows measurement of water depth in situations where the ultrasonic sensor is not appropriate.

With millimetric accuracy and resolution, it is available with measurement ranges in excess of 10m.

TIME OF FLIGHT FLOW METER

A non-invasive, clamp-on flow meter that can measure almost any fluid that contains <10% solids or gas; including water, oils, petrochemicals, alcohol and more.

The **ORAKEL Time of Flight Flow Meter** is suitable for:

- Liquid flows needing precision measuring
- High and low temperature flows
- Pipeline leak detection
- Management of liquid transfer

NON-CONTACT FLOW METER

A non-contacting liquid flow velocity sensor that uses microwave technology to transmit short pulses which reflect off a moving surface back to the sensor and then analysed to determine the velocity.

The **ORAKEL Non-Contact Flow Meter** is suitable for:

- Wastewater treatment plants
- Larger sewers
- Industrial process measurement
- Irrigation channels
- CSOs and SSOs

SUBMERGED AV FLOW METER

A robust area velocity sensor that uses ultrasonic technology to measure wastewater flow with improved accuracy and reliability.

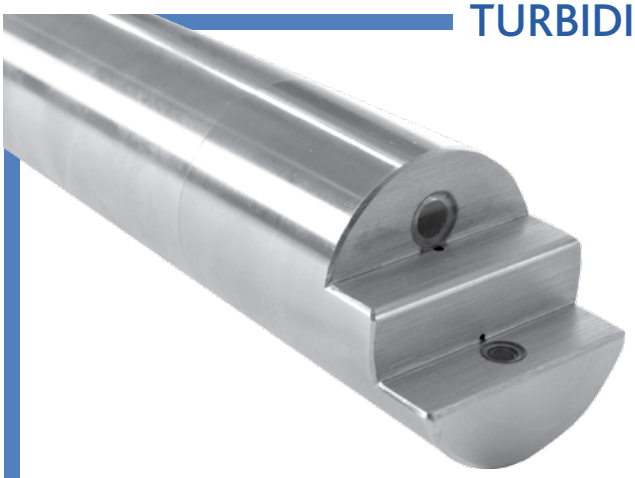
The **ORAKEL Submerged AV Flow Meter** is suitable for:

- Raw sewage
- Industrial effluents
- Storm water
- CSOs and SSOs

pH SENSOR

Combines glass electrodes with integral reference, automatic temperature compensation and solid polymeric junction (pH4) which use no reagents, are extremely stable, have reduced maintenance and lower whole-life costs.

TURBIDITY & SUSPENDED SOLIDS SENSOR



Determines true turbidity and/or suspended solids in water, using a nephelometric measurement of scattered light in accordance with ISO 7027.

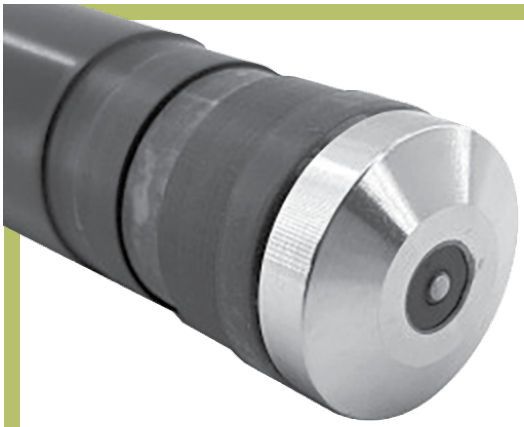
The sensor uses lifetime-based optical technology to provide an extremely stable, accurate, low maintenance sensor with no moving parts and no consumables.

CONDUCTIVITY SENSOR

Measures conductivity from 0 to 2,000,000 µS/cm² (range selectable).

You can choose between a standard **Graphite Sensor** and a more sophisticated **Toroidal Sensor** or stainless steel **'Special' Sensors** for high temperature, high pressure applications.

PERACETIC ACID SENSOR



Anywhere you have a requirement to measure residual CH_3CO_3H is a suitable application for the **ORAKEL Peracetic Acid Sensor**. These include peracetic acid dosing control, rinsers, CIP plants and bottle washers.

It is particularly suited to working in sites where reliability and ease of use are most important.

OIL ON WATER SENSOR

Provides early warnings of potential carry-over which could possibly cause pollution of a receiving water course or body.

A highly accurate, easy to maintain, autonomous non-contact sensor that locates oil spills early for swift rectification.

CHLORINE SENSOR

The membraned amperometric chlorine sensors are enhanced with a third, reference electrode which eliminates zero drift.

Its unique design means that pH correction is not usually required, completely eliminating reagents.

DISSOLVED OXYGEN SENSOR

Optical luminescent devices which are extremely resistant to abrasion, extremely stable and have greatly reduced maintenance and whole-life costs.

The sensing element - the lumiphore - is activated *(or excited)* when illuminated with a blue light.

Once activated, the lumiphore then emits blue light in an intensity that is inversely proportional to the amount of oxygen present in the water.

SUSPENDED SOLIDS SENSOR

The **ORAKEL Suspended Solids Sensor** is a single sensor with a large, dynamic range which utilises measurement technology that removes the need for a 'zero' and eliminates the effect of background light.

For multiple measuring ranges, the sensor can monitor turbidity and suspended solids from 2 NTU (1mg/l) to 8% solids.*

The sensor uses lifetime optical technology to provide a stable and reliable low-maintenance sensor with no moving parts and no consumables.

**8% in typical municipal waste water slurries. This value will vary depending on the optical properties of the sample.*

ORP SENSOR

Measures the online redox potential of any aqueous solution.

Platinum-based sensors with integral reference electrodes which use no reagents, are extremely stable and have reduced maintenance and lower whole-life costs.

COD/TOC SENSOR

Provides online continuous organics monitoring utilising a 254nm ultraviolet light source.

The amount of light absorbed provides an ongoing indication of Natural Organic Matter (NOM) in a flowing sample and serves as a continuous surrogate measurement for Total Organic Carbon (TOC), as well as other measurements such as Chemical Oxygen Demand (COD).

PARTICLE COUNTERS

Particle counters are known for their ability to detect when a filter is reaching the end of its life.

ORAKEL Particle Counters can be programmed to count particles in up to 6 size ranges and report these as counts per mm, per 100mm or raw counts.

Typical applications include water treatment, RO pre-treatment, pharmaceutical, membrane filtration, food, beverage and make-up monitoring.

THE DIFFERENCE BETWEEN SUCCESSFUL **EARLY INTERVENTION** AND NETWORK FAILURE

Intelligent remote monitoring and alarm handling ensures that **your facility is running at optimum levels**, assets are protected and that your system is operating efficiently to minimise operating costs.

By capturing critical data from across your facility, the user-friendly interface allows you to manipulate it into an easy-to-digest, interactive format.

Being web-based, your data is accessible whenever and wherever you need it. With the ability to set up email alerts, you don't even need to log-in to know when your system needs your attention.

ORAKEL SYSTEM

THE **ORAKEL SYSTEM** IS THE ULTIMATE WATER MEASUREMENT SOLUTION

Created as a **MODULAR SYSTEM**, a wide range of flow and quality sensors are available to measure various water characteristics. Integrated communication tools allow users to get a truly bespoke and cost-effective solution which delivers everything they need and nothing they don't!

The **ORAKEL Control Unit** includes an intuitive menu with integrated database, on-screen wiring diagrams, control algorithms and built-in parameters - making it simple to configure.

It comes with optional communications packages that allow local connection via Profibus, Modbus RTU and Modbus TCP, amongst others. PID control is also able to control complex water treatment processes at a fraction of the cost of other controllers.

If you need more information about what's happening, remote visibility of data streams via our secure websites allow reporting and analysis either by users or on their behalf by **Detectronic**'s experienced analytical teams.

WHETHER YOUR FLOWS ARE FAST OR SLOW, DEEP OR SHALLOW, IN CLOSED PIPES OR OPEN CHANNELS, WE HAVE THE **RIGHT SOLUTION** FOR YOU.

DETECTRONIC

Working **with you**
to **reduce costs**
and **aid compliance**

MEICA DETECTRONIC
MECHANICAL • ELECTRICAL • INSTRUMENTATION • CONTROL • AUTOMATION

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