

WE LEARN FROM YOU EVERY DAY –
AND THINK OUTSIDE THE BOX.

Efficient Process Monitoring

Integration of field devices with Industrial Ethernet

When it comes to dealing with liquids and gases, Bürkert has become a sought-after partner all over the world. Why? Probably because we have been learning for and from our customers for more than 70 years now. This enables us to always think that crucial step ahead and around the bend.

For your added value. Let us prove it to you – we look forward to your challenge.

We make ideas flow.

bürkert
FLUID CONTROL SYSTEMS

Bürkert Fluid Control Systems

Christian-Bürkert-Straße 13–17
74653 Ingelfingen
Germany

Tel.: +49 7940 100

Fax: +49 7940 1091204

info@burkert.com

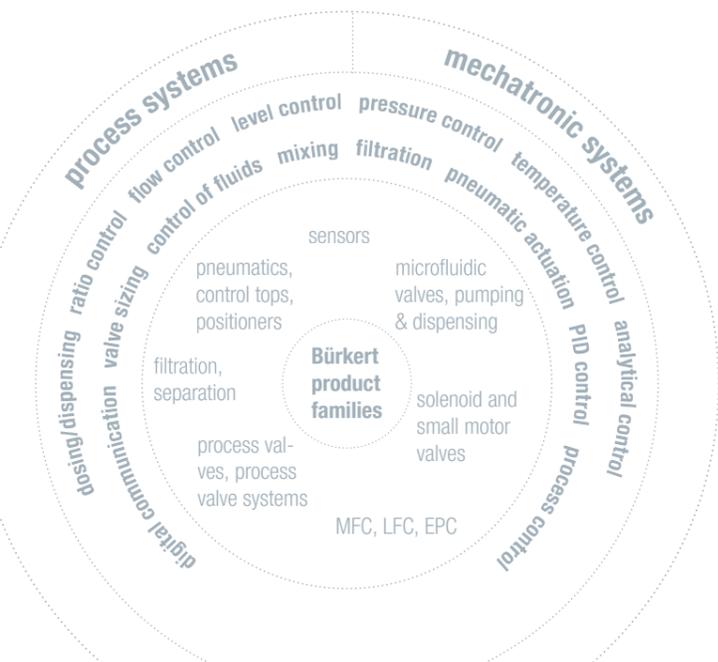
www.burkert.com

WE SPEAK YOUR LANGUAGE. FLUENTLY.

We love a good challenge. That is because we are simply fascinated by everything that flows. No matter if our customers require solutions for measurement, control or both – we always find unconventional ways of developing individual solutions.

Whether it is about flow, level, pressure, dosing, analysis, filtration, temperature, mixing or the automation of processes – liquids and gases have to be measured and controlled. These are the fundamental fluidic variations upon which industrial process technology is based, and Bürkert's specialty with its expertise and entire range of solutions and services.

What makes us special? At Bürkert, we start with your fluidic challenge and draw on the basic physical principles. This way we make use of the fluidic relationships and our experience with physics, duplicating them across the most diverse applications and industries and hence solving the same or similar challenges. You in turn benefit from a deep pool of expertise, which we accumulate from multiple industries and apply individually to your needs. For the ideal solution to your specific challenge.



DIGITALISATION FOR EFFICIENT PRODUCTION PROCESSES

Digitalisation is permanently changing the industrial landscape. An exact understanding of production processes is the starting point for improved competitiveness. The collection of all relevant process parameters and the intelligent networking of field devices make processes not only more transparent, but are also necessary for creating additional potential for optimisation. Processes can therefore be adapted and improved in real time during the production flow.

Reverse osmosis

Conductivity measurement and pressure and flow control guarantee the desired water qualities and optimises yield and efficiency, everything supplied by a single source.

Read more on page 4.

Cleaning in place

Monitoring of the flow rate, conductivity and temperature optimises specific factors such as energy, detergents and duration of cleaning. **Read more on page 6.**

Neutralisation

The pH regulation process ensures compliance with a specific pH value and, if necessary, acidic or basic media are converted to aqueous saline solutions.

Read more on page 8.

The following applications are also relevant. Please feel free to contact us for more detailed information.

Disinfection

The quantity-proportionate dosing of disinfecting agents and monitoring of the disinfectant concentration support to eliminate harmful microbiological organisms in the water or prevent their growth.

Coolant treatment

Monitoring of the salt content and the pH value of coolants prevents corrosion and residue, while the dosing of biocides saves resources used in cooling processes.

Distillation

Ultra pure water quality is achieved by measuring the conductivity and flow rate to ensure efficient process control.



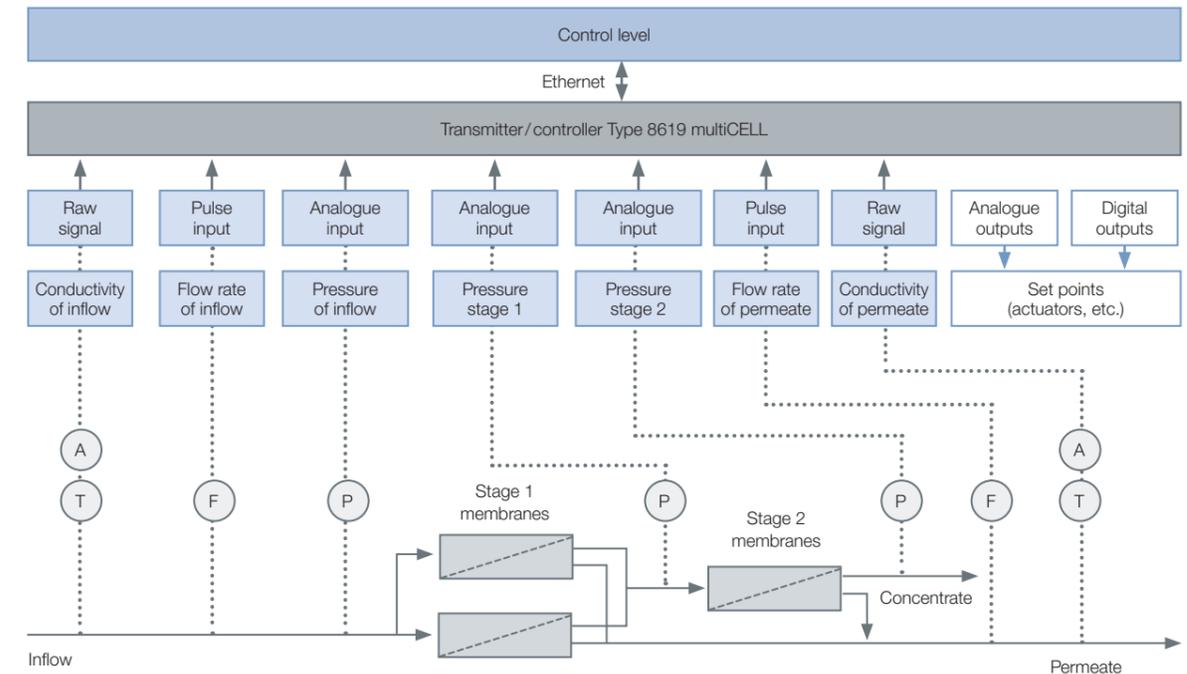
REVERSE OSMOSIS AND COMMUNICATION PROPER TREATMENT OF PROCESS WATER

For the continuous production of pure media and of concentrates, reverse osmosis is an important method for water treatment. It is used for example to produce drinking water from salt water. The process requires optimal interplay between actuators and sensor technology. The monitoring of pressure conditions and flow rates enables efficient control and early detection of fouling. The conductivity measurement ensures that the desired water quality is achieved.

An intelligent digital communication strategy creates even more possibilities for transparent and effective monitoring. This makes it possible to define specific process parameters such as yield, salt retention or pressure loss through the membrane stages in order to optimise efficiency.

YOUR ADVANTAGES

- Easy and safe integration in the control level
- Reliable process control and data transmission
- Precise measurement and documentation of all parameters
- Maximum efficiency in the production process



Schematic diagram of reverse osmosis: The diverse interfaces of the transmitter/controller Type 8619 multiCELL enable implementation of all instruments directly in the control level via digital communication.



Transmitter/controller Type 8619 multiCELL

- Measurement of conductivity, flow rate, pressure or redox potential with only one transmitter
- Integration in the automation system by means of Industrial Ethernet

Inline flow sensor Type 8030

- Broad compatibility with respect to process connections and materials to facilitate process implementation
- Precise flow rate measurement, even at very low conductivity

Conductivity sensor Type 8220

- Four different cell constants facilitate adaptation to the respective water quality
- Graphite electrodes for safe application even in case of increased salt content

Pressure transmitter Type 8316

- Type 8619 multiCELL transmitter/controller facilitates implementation in the control system
- Different versions available, also suitable for aggressive media

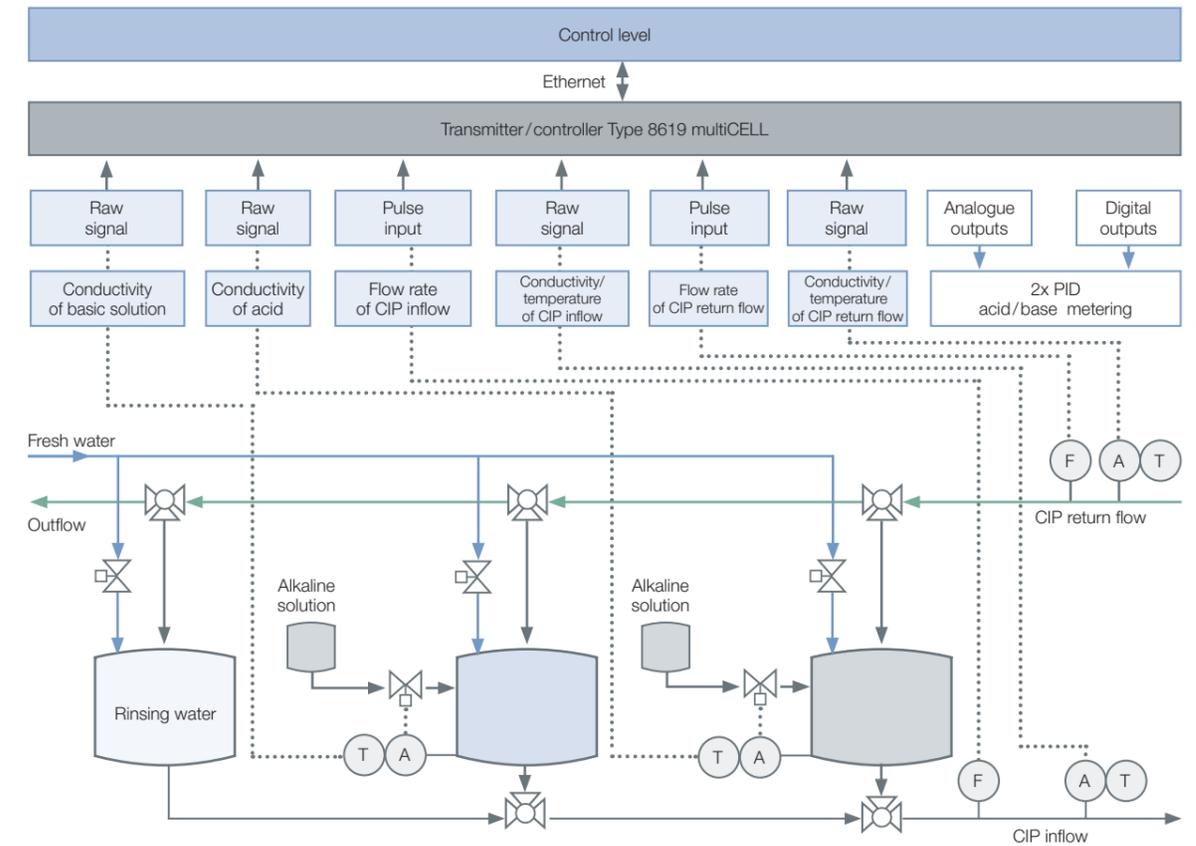
CLEANING IN PLACE DIGITALLY EFFICIENT NETWORKING FOR A CLEAN SOLUTION

Residue-free cleaning of pipes, tubes and entire systems with CIP media is especially important with respect to product quality in applications with strict hygienic requirements. Precise monitoring of the flow rate, conductivity and temperature is the key here. The conductivity measurement not only ensures correct metering of acidic and basic cleaning fluids, but also serves to differentiate between the single cleaning phases.

Transmission of relevant process parameters between the components is preferably achieved by means of digital interfaces. Consolidation of the data facilitates monitoring and enables continuous monitoring of the cleaning process. This makes it possible to optimise the cleaning duration, use of detergents and energy consumption to achieve the perfect relationship between the cleaning process and system availability.

YOUR ADVANTAGES

- Control of flow rate and concentration, as well as reliable phase detection for continuous monitoring and control of the CIP system
- Integration of all instruments directly in the control system due to highly available digital communication
- Reduced maintenance and operating costs due to standardised application philosophy
- Compliance with strict hygienic standards



Schematic diagram of CIP system: The diverse interfaces of the transmitter/controller Type 8619 multiCELL enable implementation of all instruments directly in the control level via digital communication



Transmitter/controller Type 8619 multiCELL

- Monitoring of the Sinner circle (flow rate, concentration and temperature)
- Variants are available for easy installation in the control cabinet or in the field

Conductivity sensor with 4 electrodes Type 8221

- Hygienic sensor with small dimensions is suitable for measurement in a very broad conductivity range
- EHEDG version available

Inductive flow meter Type 8041

- Modular version of electronic sensors and fittings with different diameters
- Multi-channel version is possible with Type 8619 multiCELL

FLOWave SAW flow meter Type 8098

- No components whatsoever in the measuring tube
- EHEDG version available
- Ideal for liquids with low or zero conductivity

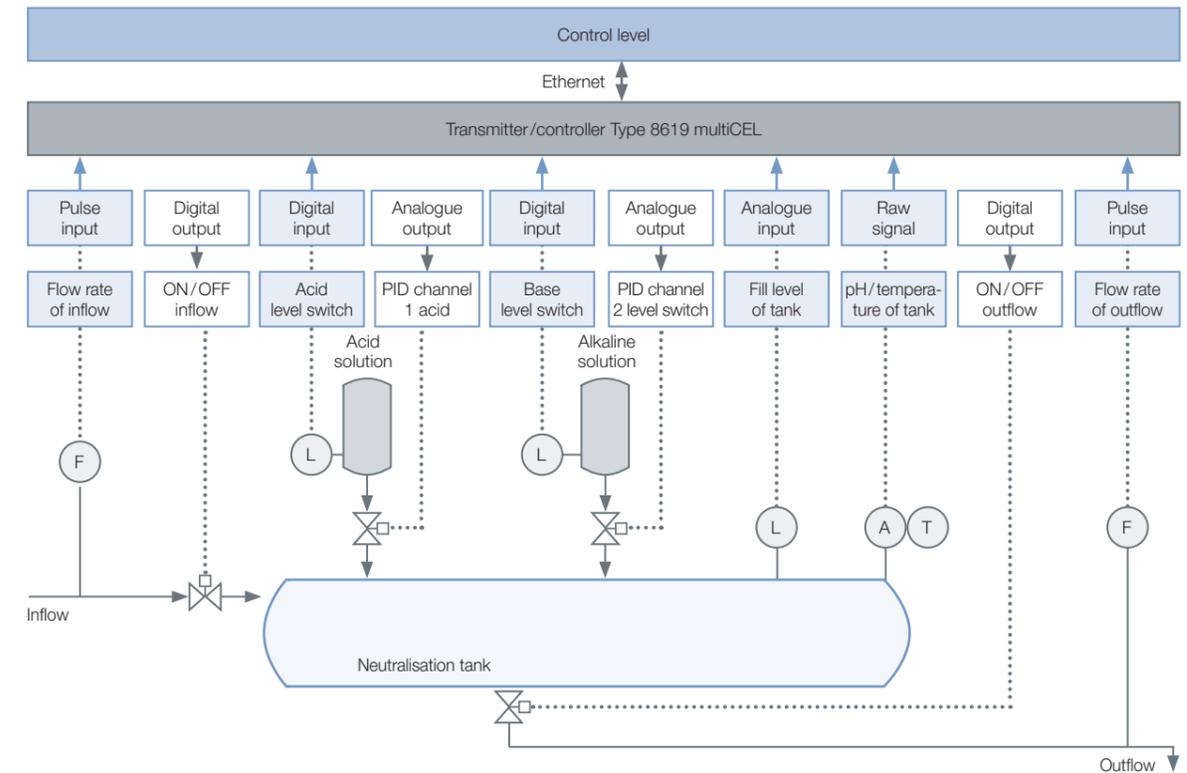
NETWORKED NEUTRALISATION FOR RELIABLE PH CONTROL

In many applications the pH value of process media has to be monitored or adjusted. If the acidity or base content of the medium is too high, this can have a lasting negative effect on quality or the efficiency of the system. Often the pH correction is necessary for other processing steps. For example, proteins can be obtained from milk by means of pH regulation or process media can be rendered innocuous by means of neutralisation.

Having an entire pH control system from a single source makes it possible to neutralise fluctuations – in the most literal sense. The networked components prevent overfilling, define the correction factor and meter the exact supply of acid and basic solutions to achieve the desired result. Digital communication makes it possible to completely integrate the entire regulated system, including all relevant process parameters, in the process control system.

YOUR ADVANTAGES

- Integration of pH regulation directly at the control level
- Reliable pH measurement also in food production by means of glass-free pH probe
- Easy combination and implementation with overflow and dry running protection



Schematic diagram of neutralisation: The diverse interfaces of the transmitter/controller Type 8619 multiCELL enable implementation of all instruments directly in the control level via digital communication.



Transmitter/controller Type 8619 multiCELL

- One- or two-channel PID regulation for metering of acid and basic solutions
- Manual set point definition or at control level by means of digital communication



Fill level switch Type 8110

- Fill level measurement by means of tuning fork prevents critical conditions
- Easy parametrisation



Enamel pH probe Type 8201

- Glass-free pH measurement for use in food production
- Robust design allows regular cleaning by means of CIP or sterilisation
- EHEDG version available



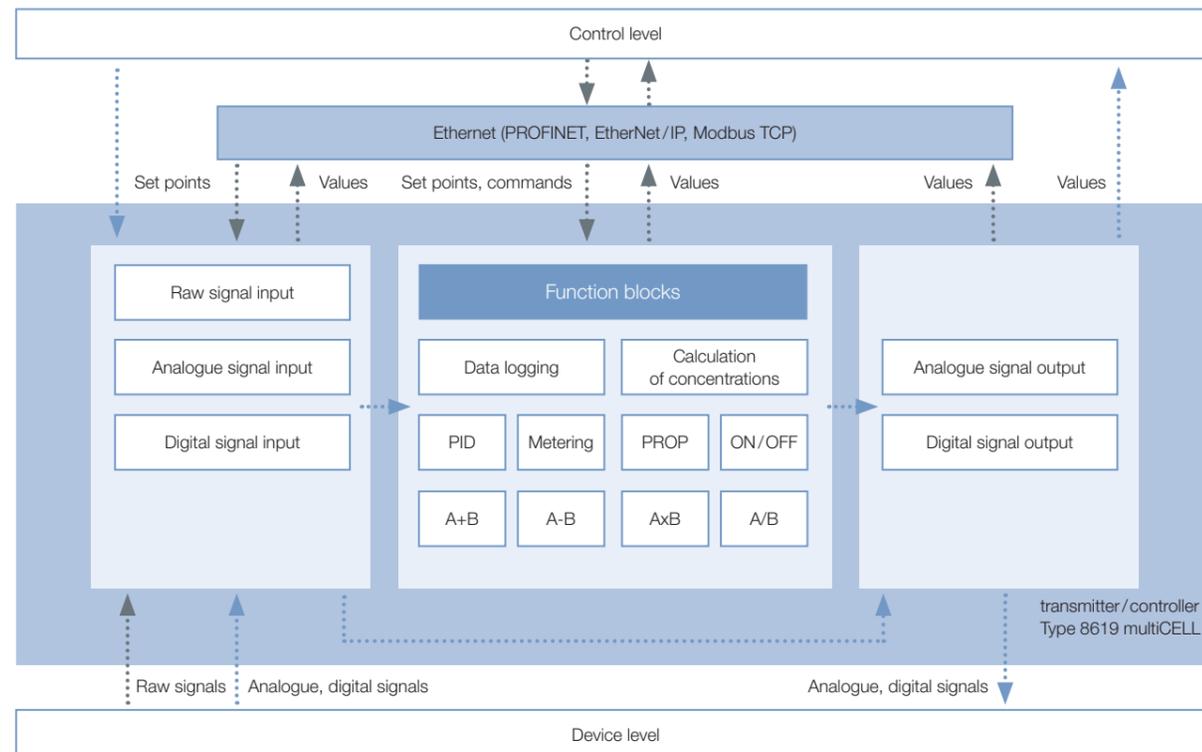
Glass pH probe Type 8203

- Broad spectrum of pH probes, suitable for many industrial applications
- Type 8200 holder program facilitates process implementation

DIGITAL SYSTEM AUTOMATION FOR REAL-TIME PROCESS CONTROL

Systems of the future will rely on intelligent networking and communication between components. That will sustainably support numerous applications in different sectors. Industrial Ethernet will facilitate integration in your automation process. Due to support of the PROFINET, EtherNet/IP and Modbus TCP protocols, all relevant

process variables, output values and diagnostic data is transmitted reliably to the PLC, which substantially reduces the need for cables. The transmitter/controller Type 8619 multiCELL is the central point of integration and the local hub, and can also perform various metering and regulation functions.



The gateway to the process: universal transmitter and controller Type 8619 multiCELL



Transmitter/controller Type 8619 multiCELL in operation: Reliable monitoring of yield and salt content of a reverse osmosis system

MULTI-FUNCTIONAL SOLUTION FOR THE ENTIRE SPECTRUM OF WATER TREATMENT

Industrial water treatment processes are used in many different ways. Our OEM partner, an expert for industrial water treatment, faced the challenge of providing his end customers from diverse sectors with the required water quality while complying with the legal requirements. The OEM required a modular concept to meet the diverse requirements, which range from the treatment of boiler feed water to the production of pure water.

sure, fill level, conductivity or pH values. The electronic system is designed for direct integration in the control level. Due to the drastic reduction in the diversity of variants, our OEM partner can now offer his end customers a standardised control and service concept.

On the basis of the transmitter/controller Type 8619 multiCELL we developed six standardised package solutions for versatile and modular adaptation to every technical and regulatory requirement. Suitable end-to-end packages – consisting of installation materials, buffers, sensors and valves, as well as all cleaning and calibration fluids – were provided for different applications. A highlight is the intelligent transmitter, which is designed for easy integration of different sensors for measuring pres-

AT A GLANCE

Application	OEM industrial water treatment
Requirements	Water treatment in different industries
Solution	Standardised package solutions on the basis of the respective specification
Added value	Instrumentation from a single source, customisable solution, pre-configured for easy installation