

cCare

Fully Automated Sensor
Maintenance System



**THE ART
OF MEASURING**

cCare

cleaning - calibration - conservation

In the process industry, the pH value is the most important parameter for controlling chemical reactions and the consumption of raw materials. There is a solution from Knick for extending the service life of pH sensors, especially with aggressive viscoses and abrasive media: cCare ensures accurate measurements through fully automatic cleaning and calibration of pH sensors and reduces maintenance and material costs at the same time. As an autonomous measuring system, cCare supplies reliable values directly to the process control systems. In this way, cCare not only contributes to process optimization, product quality, and the safety of people and the environment, but also to end-to-end digitalization in the process industry.

cCare

is a sensor maintenance system that cleans and calibrates pH sensors fully automatically, thus extending their service life.

c FOR CLEANING

The retractable fitting moves the sensor into the service position and safely seals off the process even under pressure. At freely selectable intervals, the cCare system cleans and rinses the sensor in the fitting's calibration chamber particularly thoroughly by means of a patented 360° cyclone rinsing.

Depending on the requirements of the process, the cleaning and rinsing fluids can be water, chemicals to prevent heavy deposits, or other solvents.

c FOR CALIBRATION

After cleaning, the sensor is calibrated at user-defined intervals by means of a one- or two-point calibration. For this purpose, the system successively pumps buffer solutions into the calibration chamber of the retractable fitting. The transmitter compares the measured values with the pH values of the buffer solutions and adjusts the deviations if necessary.

c FOR CONSERVATION

Regular cleaning and calibration not only improves the quality of the measured values, but considerably extends the service life of the pH sensors. In the case of especially aggressive or abrasive media and high temperatures, cCare can also perform short-time measurements in which the sensor is only temporarily immersed in the process medium and otherwise remains cleaned in sensor-friendly electrolyte in the calibration chamber.

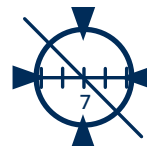
CLEANING

Fully automatic cleaning with patented cyclone rinsing



CALIBRATION

Fully automatic calibration and adjustment of the pH sensor



CONSERVATION

Extension of the sensor service life through regular maintenance



WHY cCare

REDUCING MAINTENANCE COSTS

In the worst case, inaccurate pH readings can cause rejects in high-throughput productions or pose a risk when dealing with hazardous substances. The regular maintenance of pH sensors is therefore essential, but at the same time labor- and material-intensive, especially in large plants or in harsh ambient conditions. In case of electrode-poisoning or junction-clogging process media, cleaning is often necessary after just a few days or even hours. Regular cleaning and calibration significantly increases the service life of the sensors. With cCare, there is no need for any manual intervention at the measuring point.

SAFETY AND EX APPROVAL

Many measuring points are located in explosive or toxic areas where human presence is restricted or even prohibited. As the only sensor maintenance system on the market, cCare with all components is approved for use in Ex Zone 1. Additionally, the required stay in the hazardous areas is considerably reduced by the automation of

maintenance. Using pre-calibrated Memosens sensors ensures the highest possible reliability regardless of environmental conditions. The safe process separation of Knick's retractable fittings also helps prevent hazardous and toxic substances from escaping.

A MODULAR SYSTEM FOR ALL REQUIREMENTS

cCare is a flexible system that can be adapted to any application. The system consists of a Unical 9000 or Uniclean 900 electro-pneumatic controller, a retractable fitting from the Ceramat or SensoGate series, and a Protos transmitter. The system is completed by media containers with integrated pneumatic metering pumps. The components are modular in design.

The fittings are adaptable to any application through many materials, process customization, and immersion lengths. The system monitors the compressed air and water supply, leakage in the housing, sensor position and the level of buffer and cleaning solutions.

EFFICIENCY THROUGH ACCURATE MEASUREMENTS AND DIGITALIZATION

cCare fully automates every pH measuring point and thus contributes to end-to-end digitalization from the sensor to the process control system.

The system communicates with the process control system via fieldbus. Thanks to the maximum available and reliable values, the control system can react perfectly.



Chemistry



Pharma & Biotech



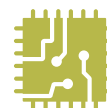
Food & Beverage



Energy



Oil & Gas



Semiconductors



Mining

cCare SYSTEM

All components at a glance

TRANSMITTER

Central programming and operating unit of the system. Simple plain text operation and easy copying of settings. Expandable to fieldbus communication and operation with Memosens, digital, and analog electrodes.

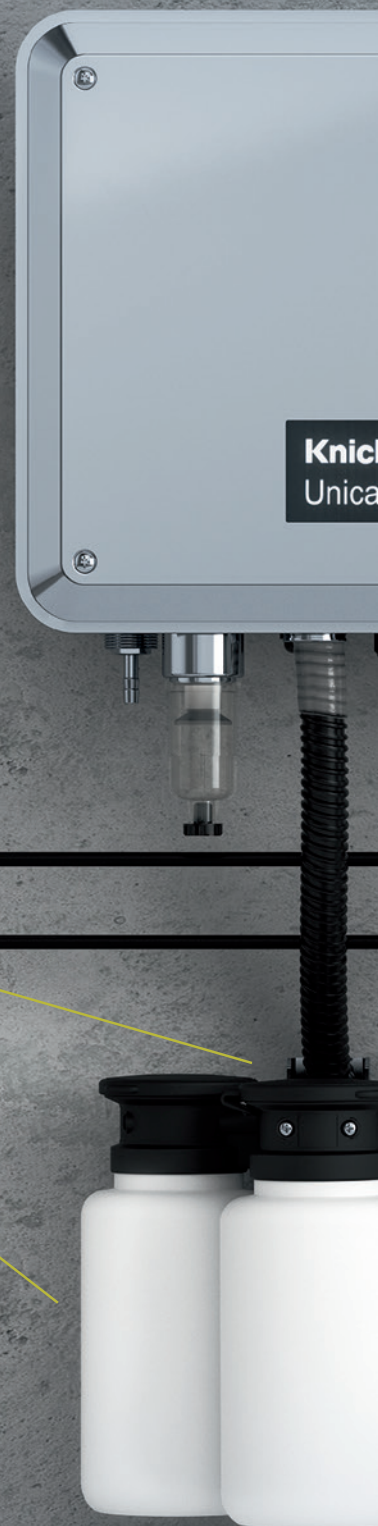


MEDIA CONNECTION WITH MULTIFUNCTION PLUG

Central supply of rinsing and calibration liquids in pre-assembled hoses. Quick, easy, and fail-safe installation via a multifunction plug, use of ball valves that reliably prevent media carryover and back-mixing.

MEDIA ADAPTER WITH CONTAINERS AND METERING PUMPS

1-3 containers for cleaning and calibration solutions with wear-free pumps. Container capacity with 3.5 l buffer solution is sufficient for up to 140 calibrations. An additional cleaning or rinsing fluid can be supplied via the external valve in Unical.



CONTROLLER

Electropneumatic function with service-friendly concept. Can be used directly in hazardous locations. Fully automatic, modular, low-wear and low-maintenance operation.



SERVICE SWITCH

Central safety switch for immediate retraction of the sensor into the fitting. With warning signal function and active feedback on the actual position of the sensor.

RETRACTABLE FITTINGS

Fittings of the Ceramat or SensoGate series can be used. Modular systems available in various designs (materials, process connections, immersion length, etc.). Adaptable to any process application.



MODULARITY – THOUGHT OUT IN EVERY DETAIL

Protos II 4400



**Unical 9000
Uniclean 900**



**Media containers
with metering pumps**



TECHNIC AND FEATURES

- Flexibility through modules for measurement parameters, communication, and control.
- The measuring module is freely selectable. In addition a third module, e.g., for communication or a second measuring channel can be chosen.
- For Memosens, digital, and analog sensors.
- Rugged; can also be used outdoors (with IP65 protection and UV resistance).
- Stainless steel housing, optionally with hygienically optimized surface or corrosion-resistant powder coating for harsh industrial environments.
- USB memory card concept for data recording, firmware updates, and Audit Trail.

TECHNIC AND FEATURES

- Easy installation, also usable in hazardous locations.
- Hygienic version in polished stainless steel or corrosion-proof in powder-coated steel.
- Tidy hose guiding.
- Flexibility through control of up to three pumps plus additional valve.
- Uniclean 900 without automatic calibration function.
- Consistent enclosure concept.
- Modular design, retrofittable and expandable.

TECHNIC AND FEATURES

- Wear-free, innovative pump technology and extremely low media consumption.
- Pneumatic positive displacement pump without piston, no vibrating diaphragms or squeezed hoses.
- Pump modules are automatically recognized by the system.
- Buffer or cleaning solution containers (3.5 l) can be used as active, self-sufficient assemblies with integrated pump and can be replaced as required.
- Simple refilling of the buffer or cleaning solution, without removal of the pump, through an integrated funnel.

MODULAR SYSTEM FOR RETRACTABLE FITTINGS

Multiplug



Ceramat



SensoGate



TECHNIC AND FEATURES

- Central media supply.
- No carry-over and back-mixing of media due to separate media supply and ball valves.
- Simple connection and mounting on the fitting with two screws.

TECHNIC AND FEATURES

- Retractable fitting with ceramic sealing, superior to conventional O-ring seals in demanding measurement environments.
- Extremely resistant to chemical, thermal and mechanical influences.
- Patented cyclone rinsing for optimal cleaning.
- For highly corrosive media and processes with depositing, abrasive, and encrusting solid particles.
- For pulpy, fibrous media and media contaminated by organic and sticky residues.
- For safety-critical processes with highly toxic substances.
- Sophisticated modular system with different materials and immersion depths.

TECHNIC AND FEATURES

- Retractable fitting with patented lock-gate principle, especially suitable for hygienic applications.
- Lock-gate principle that reliably prevents leakage of the process medium when the sensor is moved, as the process is completely sealed off from the rinsing and calibration chamber.
- Seal cleaning during movement and cardanic bearing of the immersion tube reduce seal wear.
- Extensive modular system of different materials and process connections.

PROCESS ANALYTICS

- INDUSTRIAL TRANSMITTERS
- FITTINGS
- AUTOMATIC CLEANING AND
CALIBRATION SYSTEMS
- SENSORS
- PORTABLES
- LABORATORY METERS



**KNICK
ELEKTRONISCHE MESSGERÄTE
GMBH & CO. KG**

Beuckestraße 22, 14163 Berlin
Telefon: +49 30 80191-0
Telefax: +49 30 80191-200
info@knick.de