

LiquiSonic® QC

The Central Quality Test Site

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LiquiSonic®

Quality, **saving resources: LiquiSonic®.**

-value, **innovative sensor technology.**

accurate, **user-friendly.**

SensoTech is a provider of systems for the analysis and optimization of process liquids. It is our goal to ensure that you maximize the potential of your manufacturing facilities at all times.

The LiquiSonic® measuring and analysis systems ensure optimal product quality and maximum plant safety. Thanks to their enhancing of efficient use of resources they also help to reduce costs.

During the mixing of bath chemicals from supplied concentrates and the solvent (e.g. water), dilution control for target concentration is necessary as it ensures an efficient use of the materials used with consistent implementation of quality-related parameters.

LiquiSonic QC® is an analysis system determining the concentration in a liquid without time delay. The device is based on the highly precise measurement of the absolute sonic velocity and process temperature and thus allows for the calculation and monitoring of concentrations.

Benefits for the user:

- fast control of samples
- robust, endurable measuring system
- storage of a laboratory reference value
- clear graphical representation
- reliable measuring results

The use of 'state-of-the-art' digital signal processing technology guarantees highly accurate, fail-safe measuring of absolute sonic velocities and liquid concentrations.

Integrated temperature detection, sophisticated sensor design, and know-how from SensoTech's extensive measurement history in numerous applications promises users a highly reliable, long-lived system.

Advantages of the measuring method are:

- absolute sonic velocity as a well-defined and retraceable physical quantity
- independence from conductivity, color or optical transparency of the process liquid
- robust, all-metal, gasket-free sensor design with no moving parts
- maintenance-free
- corrosion-resistant by using special material
- data transmission via USB or Ethernet



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1 Applications



1.1 LiquiSonic® QC in the production

For processes and systems in which an inline measurement is not feasible and the quality monitoring thus requires sampling, SensoTech has created a clever solution.

Especially with small volumes, an inline measurement is often not reasonable and entails expensive conversions. Thus, **LiquiSonic® QC**, the especially developed **central quality test site**, is perfectly suitable in such systems.

LiquiSonic® QC is adjusted to the individual concentration ratios at the relevant measuring points in the production system by using special product data sets (e.g. Hakupur 700). The system optionally comprises accessories. These complete the measuring station and ensure that it is immediately ready for use – without complex installation or commissioning.

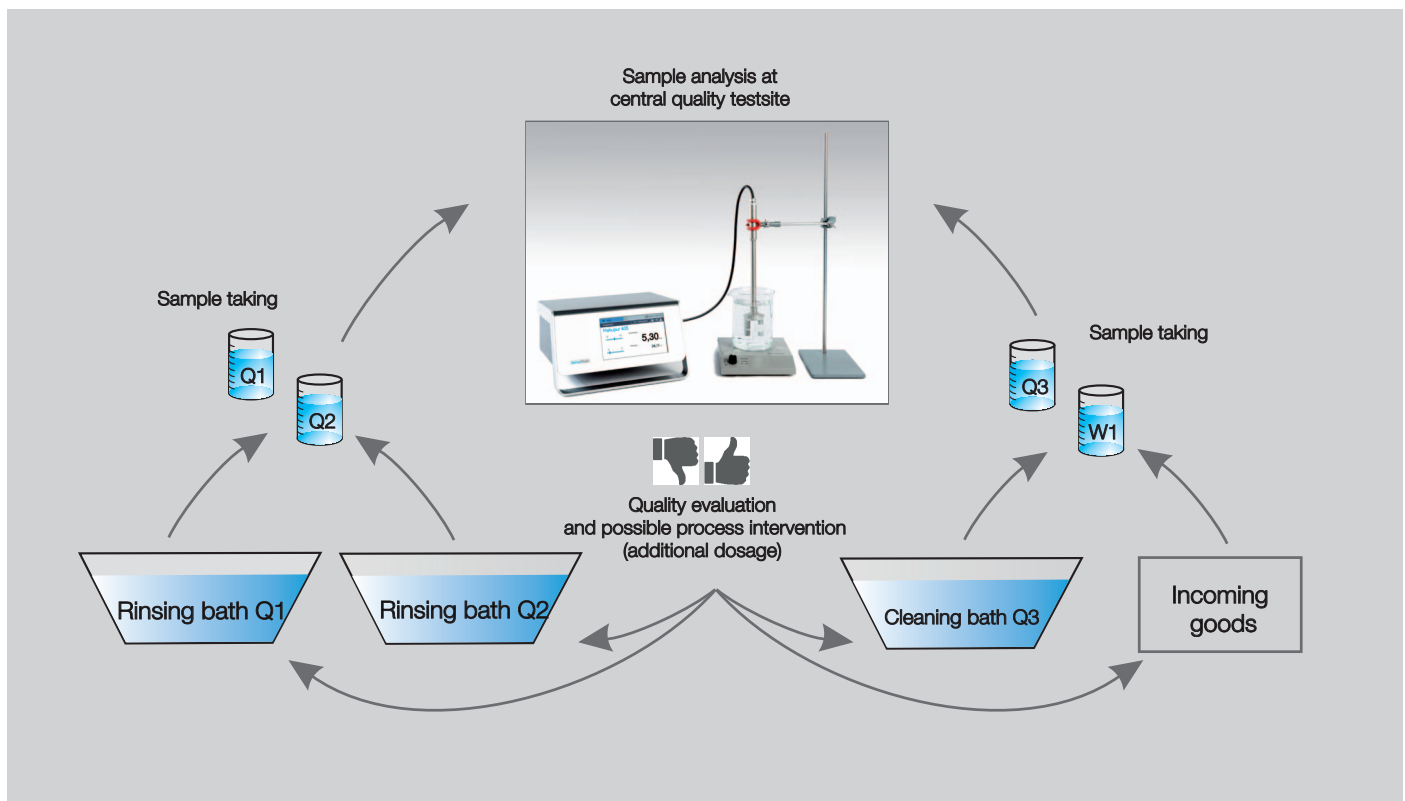
The sensor electronics are integrated in the splash-proof controller. The latter provides for analysis and visualization of the sensor data. For aggressive process liquids, the sensor can moreover be made of different, resistant materials.

1.2 LiquiSonic® QC in the incoming goods department

For a perfect cleaning result, it is indispensable to ensure a high bath quality. This already starts with the monitoring of the delivered process liquids. Early detection of deviations or faulty products leads to fast reactions and thus to resource-sparing production.

The **central quality test site** makes easy and fast monitoring of the delivered products possible, directly in the incoming goods department.

Like in the process, the liquid is directly sampled at the place of delivery. As a consequence of the real-time measurement, quality deviations are immediately identified and immediate action is possible. Thus, mistakes and product quality fluctuations within different batches are immediately identified.



LiquiSonic® QC in production and incoming goods department

2 Comfortable measurement



2.1 In two steps to the result

LiquiSonic® QC ensures error-free examination of different samples.

The measurement is completed in two easy steps:

1. Select the corresponding measuring point at the controller and immerse the sensor into the stirred sample.
2. After few seconds, the measured value stabilises and the measurement is saved by pressing the corresponding button.

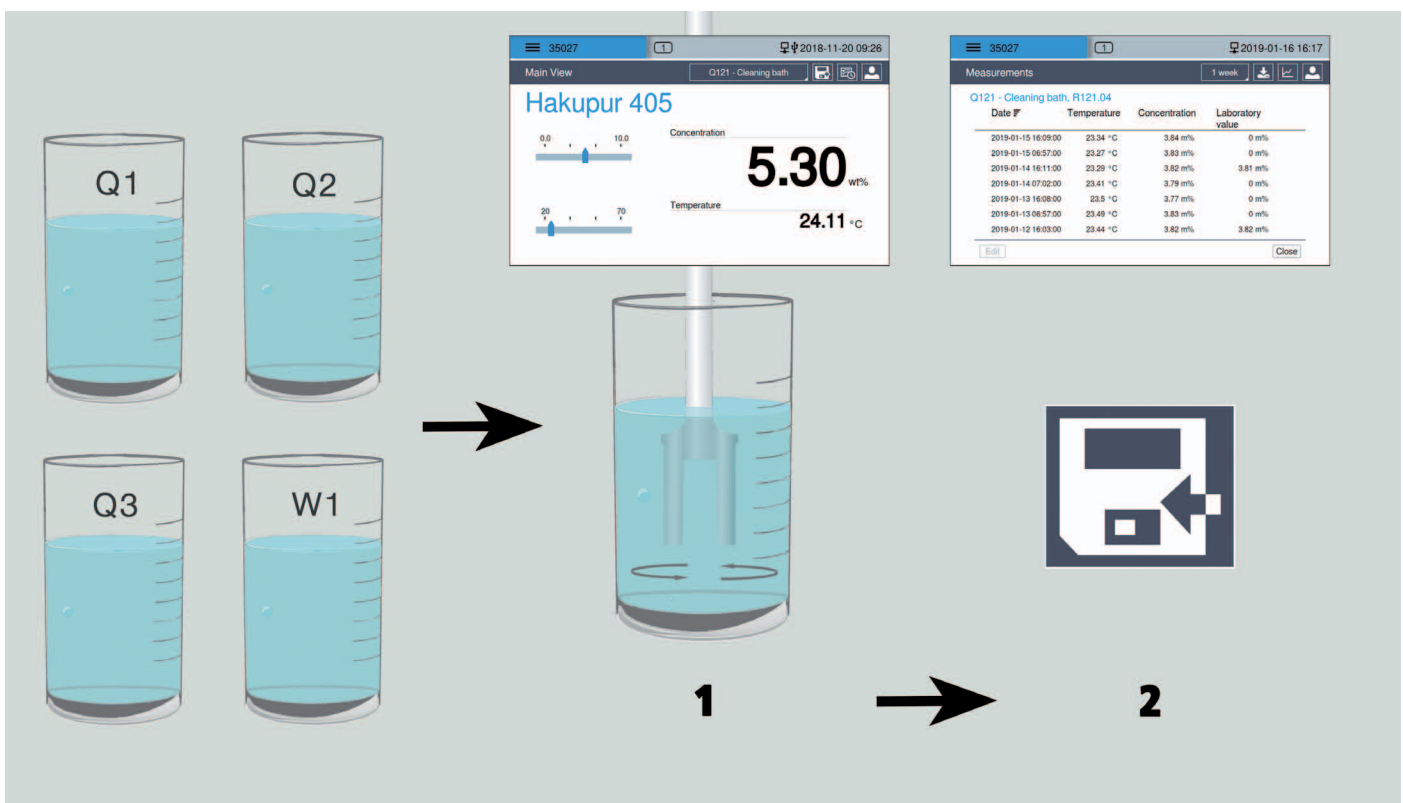
Afterwards, the measured values can be edited or – in case of faulty measurements – hidden via the tabular view for the data export.

LiquiSonic® QC moreover offers the possibility to directly store the measured values in the controller and to export them for further use, e.g. documentation or evaluations.

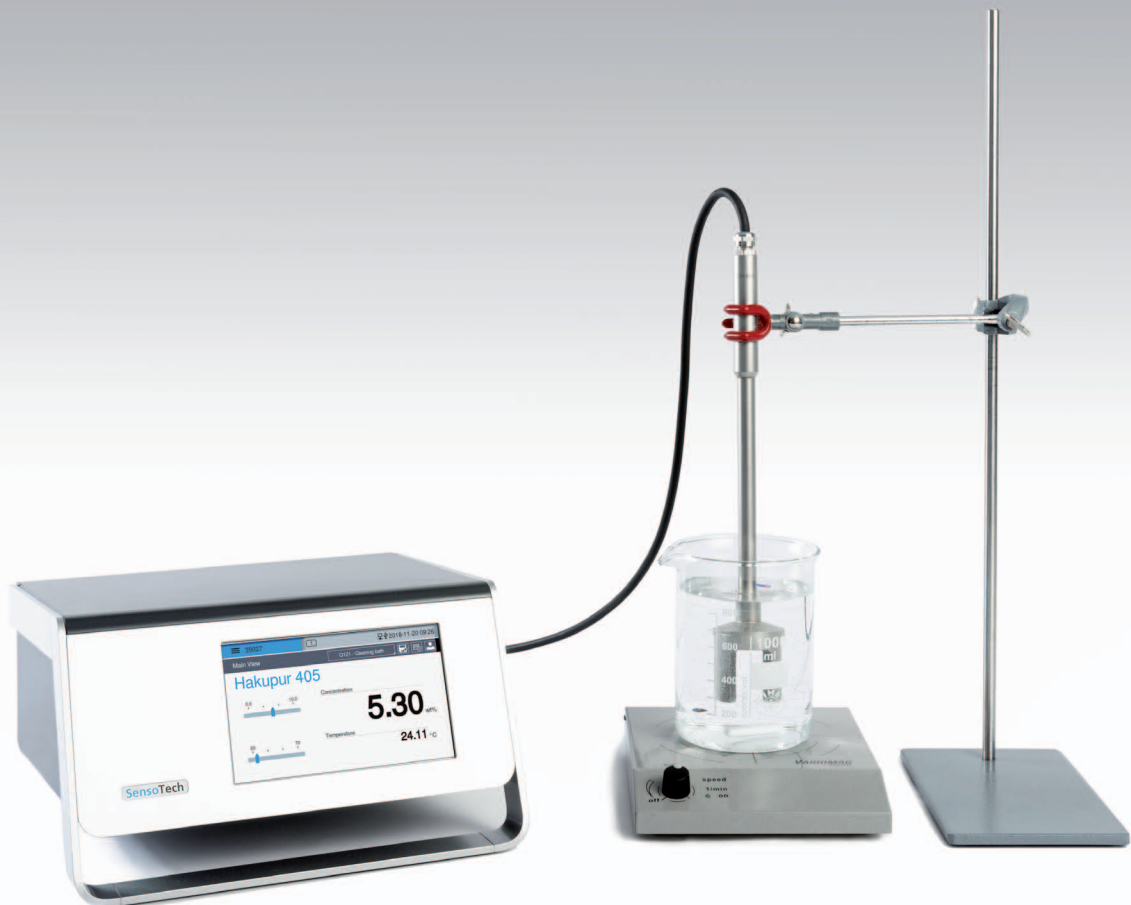
The clear user interface and menu structure allow for easy control of the functions as well as intuitive system operation without extensive manual reference.

Your benefit:

- fast, precise measurement
- reliable documentation of the data
- measured value overview (history) for quality check
- fast, intuitive operation by means of touch screen
- multi-language menu navigation
- data export into Excel (e.g. via USB)

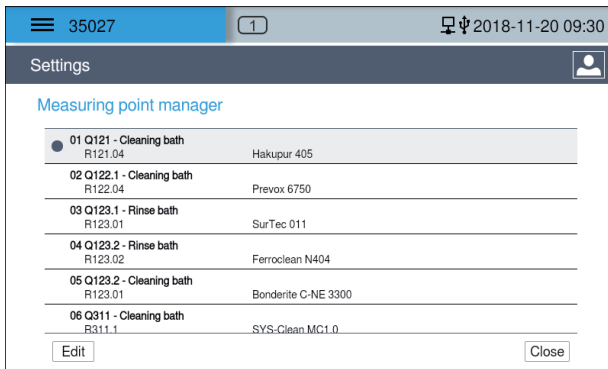


3 Functionality

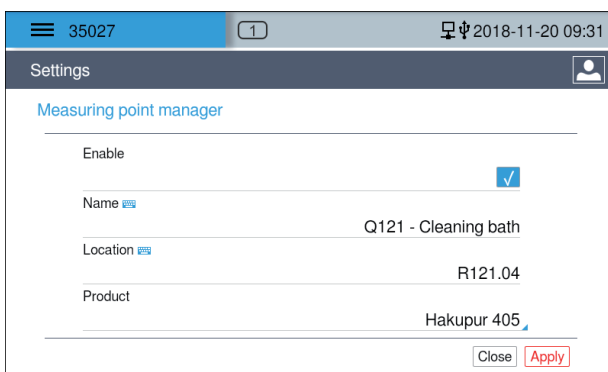


3.1 Measuring point management

The clear measurement point management is perfectly suited for the management and easy selection of the samples/measurements with only two clicks. In production systems, there are usually several measurement points that are to be checked; consequently, one digital measurement point is created in the device for every physical one.

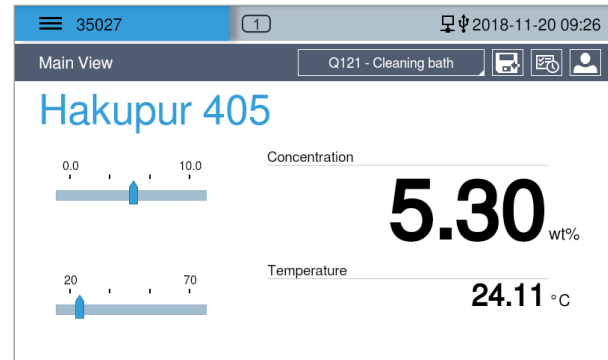


LiquiSonic® QC is able to manage 20+ different measurement points. For each, 1,000 measurements can be saved. Every measurement point has an individual configuration and can be field-adjusted. Name, product to be measured and the room designation are freely adjustable. Apart from that, a laboratory value as reference and a comment can be assigned.



3.2 Limit value display

The fast and early identification of quality deviations prevents unnecessary costs. As support, the display of the central quality test site has a visual assistance.



The controller shows the limit value display in the left part of the screen. Deviations from the tolerances are identifiable at first glance due to the color marking.

If the value measured in real-time is outside the admissible limits, this is signaled by means of a warning and the deviation is documented. High quality of the cleaning, texture, flushing and preservation baths or the delivered products is thus guaranteed.

3.3 Data export

For data back-up or for the further processing of the data, LiquiSonic® QC offers the possibility to export data, e.g. using Ethernet or USB. For every measuring point, one csv file is created which can then be used for further data analyses or documentation.

Your benefit:

- fast, easy export of the measured data
- continuous documentation of the measured data
- further processing of the data at the computer
- reference value can be stored as control
- documentation of the quality control
- flexible data processing

3.4 Data history

In the controller, the history of the measurements can be shown for any one of the 20+ measurement points in tabular and in graphical view. Both views are perfectly suited for getting a fast overview of the completed measurements.

One first, fast analysis of the data simplifies the detection of quality fluctuations at one glance. Subsequent, more detailed analyses are possible after the data export at a computer.

3.4.1 Tabular view

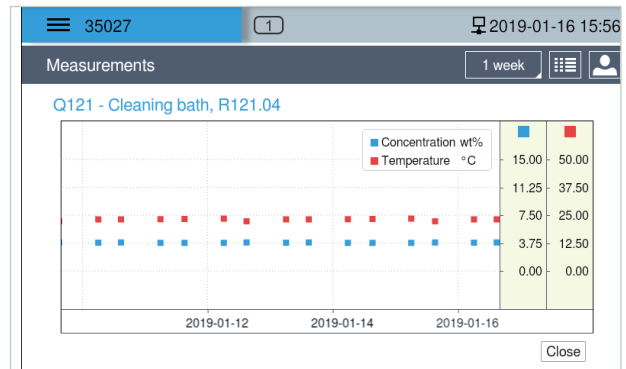
Due to extensive processing options, measurements can be hidden, e.g. in case of faulty measurements. The intuitive sorting function by means of which all data can be displayed in ascending or descending order is also very helpful.

For quality assurance purposes, a reference value from an external laboratory can be stored in the controller. This value serves the fast comparison and identification of systematic measurement errors and thus contributes to safety and quality assurance.

3.4.2 Graphical view

In addition to the tabular view, the controller is able to display measurements in a clear form in a diagram. The modern, high-resolution color display allows for the easy identification of trends and developments in the course of time.

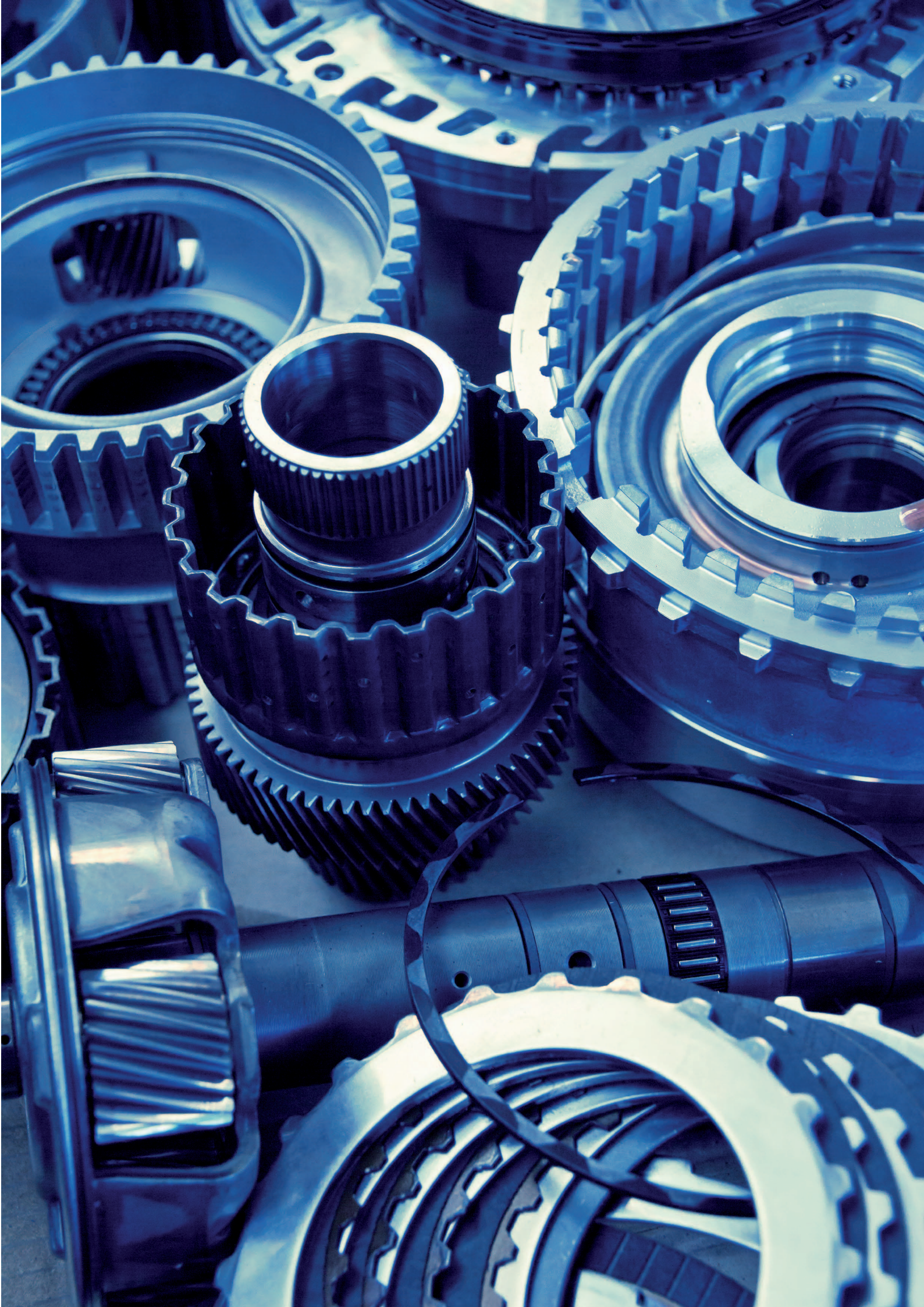
Deviations can also be easily detected in the course of time of the measurement points. These data can be exported for documentation purposes or downloaded to a computer in the form of a data sheet.



Your benefit:

- clear visualization of the measured values
- intuitive sorting function and reference value for analyses
- separate overview for every measurement point
- easy detection of outliers and faulty measurements

Date	Temperature	Concentration	Laboratory value
2019-01-15 16:09:00	23.34 °C	3.84 m%	0 m%
2019-01-15 06:57:00	23.27 °C	3.83 m%	0 m%
2019-01-14 16:11:00	23.29 °C	3.82 m%	3.81 m%
2019-01-14 07:02:00	23.41 °C	3.79 m%	0 m%
2019-01-13 16:08:00	23.5 °C	3.77 m%	0 m%
2019-01-13 06:57:00	23.49 °C	3.83 m%	0 m%
2019-01-12 16:03:00	23.44 °C	3.82 m%	3.82 m%



4 Optional accessories



As complete system, **LiquiSonic® QC** has optional accessories simplifying the measurements in the laboratory or at the measurement station.

4.1 Basic equipment

To allow for the highest level of precision, a stirrer plate ensures the necessary mixing of the sample liquid. That minimizes the formation of gas bubbles and temperature layers and thus ensures good measurement conditions.

Thanks to the suitable tripod, it is possible to easily fix the sensor in the correct position, centrally in the beaker. This ensures constant conditions for all measurements, as no intervention or re-adjustment is necessary.



Contents:

- variable tripod including clamp and cross clamp holder
- magnetic stirrer plate with five stirrers
- five beakers

4.2 Complete equipment

Some process liquids require measurements under special conditions. For such cases, SensoTech provides a thermostat including hose and a temperature-controlled beaker, in addition to the normal equipment.

The thermostat ensures that the sample has the desired temperature or holds it over a freely selectable period. Apart from that, you can, for example, realize temperature ramps.

Contents:

- thermostat Julabo F12 – MA
- temperature-controlled beaker borosilicate glass
- connection hose with mounting clamps
- variable tripod including clamp and cross clamp holder
- magnetic stirrer plate with five stirrers
- five beakers

5 Quality and support



Enthusiasm for technical progress is the driving force behind our company as we seek to shape the market of tomorrow. As our customer you are at the center of all our efforts and we are committed to serving you with maximum efficiency.

We work closely with you to develop innovative solutions for your measurement challenges and individual system requirements. The growing complexity of application-specific requirements means it is essential to have an understanding of the relationships and interactions involved.



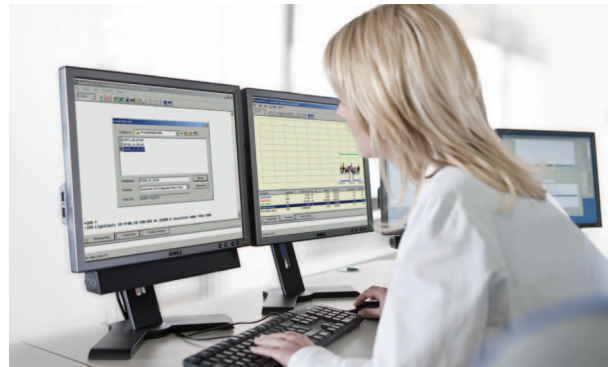
Creative research is another pillar of our company. The specialists in our research and development team provide valuable new ways to optimize product attributes, such as testing new types of sensor designs and materials or the sophisticated functionality of electronics, hardware and software components.

Our SensoTech quality management also only accepts the best production performance. We have been certified according to ISO 9001 since 1995. All device components pass various tests in different stages of production. The systems have all gone through an internal burn-in procedure. Our maxim: maximum functionality, resilience and safety.

This is only possible due to our employee's efforts and quality awareness. Their expert knowledge and motivation form the basis of our success. Together we strive to reach a level of excellence that is second to none, with a passion and conviction in our work.

Customer care is very important to us and is based on partnerships and trust built up over time. As our systems are maintenance free, we can concentrate on providing a good service to you and support you with professional advice, in-house installation and customer training.

Within the concept stage we analyze the conditions of your situation on site and carry out test measurements where required. Our measuring systems are able to achieve high levels of precision and reliability even under the most difficult conditions. We remain at your service even after installation and can quickly respond to any queries thanks to remote access options adapted to your needs.



In the course of our international collaboration we have built up a globally networked team for our customers in order to provide advice and support in different countries. We value effective knowledge and qualification management. Our numerous international representatives in the important geographical markets of the world are able to refer to the expert knowledge within the company and constantly update their own knowledge by taking part in application and practice-oriented advanced training programs.

Customer proximity around the globe: an important element of our success worldwide, along with our broad industry experience.



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Views

Main View

Chart

SonicGraph

Messages

Product

Controller

Sensor

Main View

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System test H₂O

Concentration

-0,01

Temperature

liquids, **we set the measure.**

ovative **sensor technology.**

accurate, **user-friendly.**

SensoTech is a provider of systems for the analysis and optimization of process liquids. Since our establishment in 1990, we have developed into a leading supplier of process analyzers for the inline measurement of liquid concentration and density. Our analytical systems set benchmarks that are used globally.

Manufactured in Germany, the main principle of our innovative systems is to measure ultrasonic velocity in continuous processes.

We have perfected this method into an extremely precise and remarkably user-friendly sensor technology. Beyond the measurement of concentration and density, typical applications include phase interface detection or the monitoring of complex reactions such as polymerization and crystallization.

Our LiquiSonic® measuring and analysis systems ensure optimal product quality and maximum plant safety. Thanks to their enhancing of efficient use of resources they also help to reduce costs and are deployed in a wide variety of industries such as chemical and pharmaceutical, steel, food technology, machinery and plant engineering, car manufacturing and more.

It is our goal to ensure that you maximize the potential of your manufacturing facilities at all times. SensoTech systems provide highly accurate and repeatable measuring results even under difficult process conditions. Inline analysis eliminates safety-critical manual sampling, offering real-time input to your automated system. Multi-parameter adjustment with high-performance configuration tools helps you react quickly and easily to process fluctuations.

We provide excellent and proven technology to help improve your production processes, and we take a sophisticated and often novel approach to finding solutions. In your industry, for your applications – no matter how specific the requirements are. When it comes to process analysis, we set the standards.



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In liquids, we set the measure.