

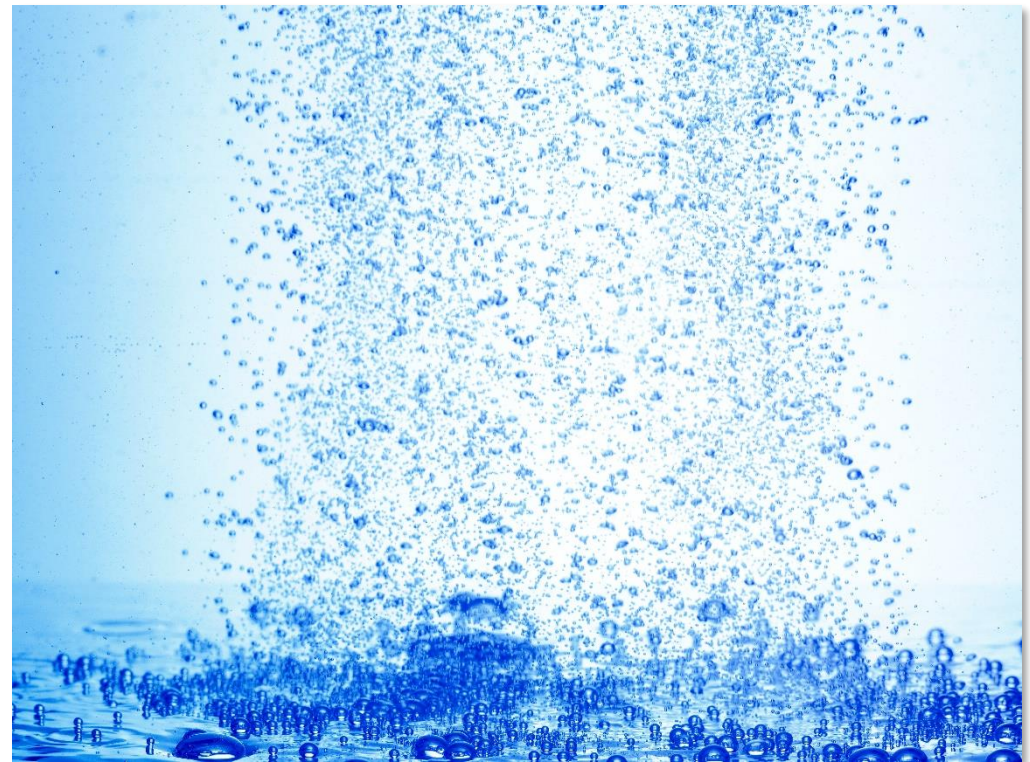


Bath monitoring

Introduction

Bath monitoring - numerous applications

- used in a wide range of processes, e.g.
 - cleaning
 - rinsing
 - treatment
 - hardening
 - coating
- SensoTech offers solutions for:
 - users of bath applications
 - cleaning machine supplier
 - chemical supplier (e.g. cleaning agents)
- bath monitoring trends
 - growing need of inline monitoring
 - data storage for quality management
 - traceability
 - modular system for different bath applications and product switches



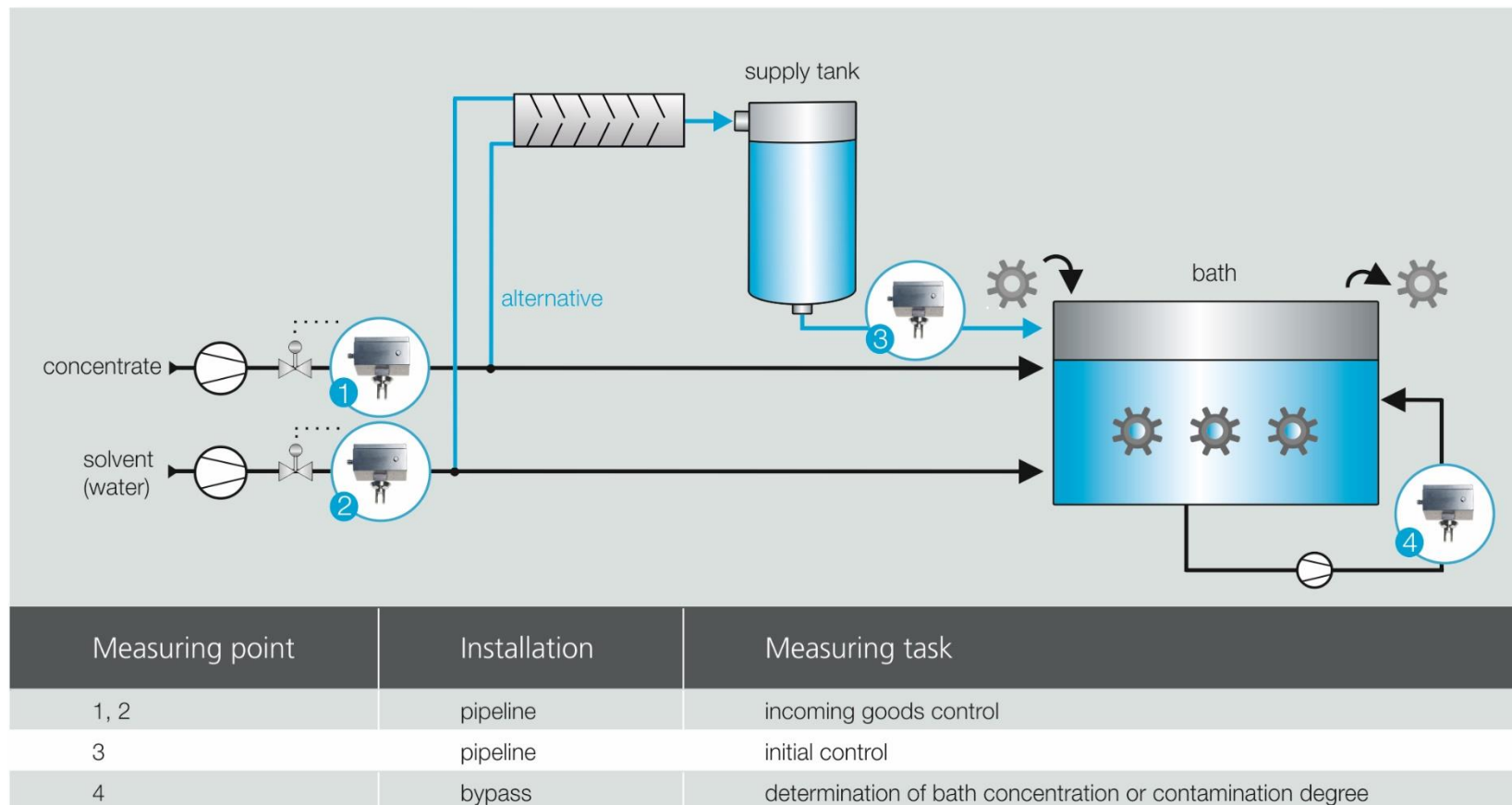
Bath monitoring

Bath applications

Application	Industry	Measuring task
cleaning	• metal processing • automotive & aircraft • electronics • plastics	• control of the desired concentration (prevent overdosing) • detection of impurity levels in batch processes • prevention of faulty batches (underdosing) • fully automatic dosing (PCS connection)
rinsing	• metal processing • automotive & aircraft • electronics • plastics	• signaling when rinsing bath change is required • quality management and traceability (continuous data logger) • reduction of system runtime • increased quality through a continuous data documentation
hardening	• metal processing • automotive & aircraft	• optimal concentration control • prevent cracking
coating	• metal processing • automotive & aircraft • plastics	• avoid overdosing and danger of component damages • prevention of faulty batches • resource-conserving handling

Bath monitoring

Initial control and bath maintenance



Metal processing

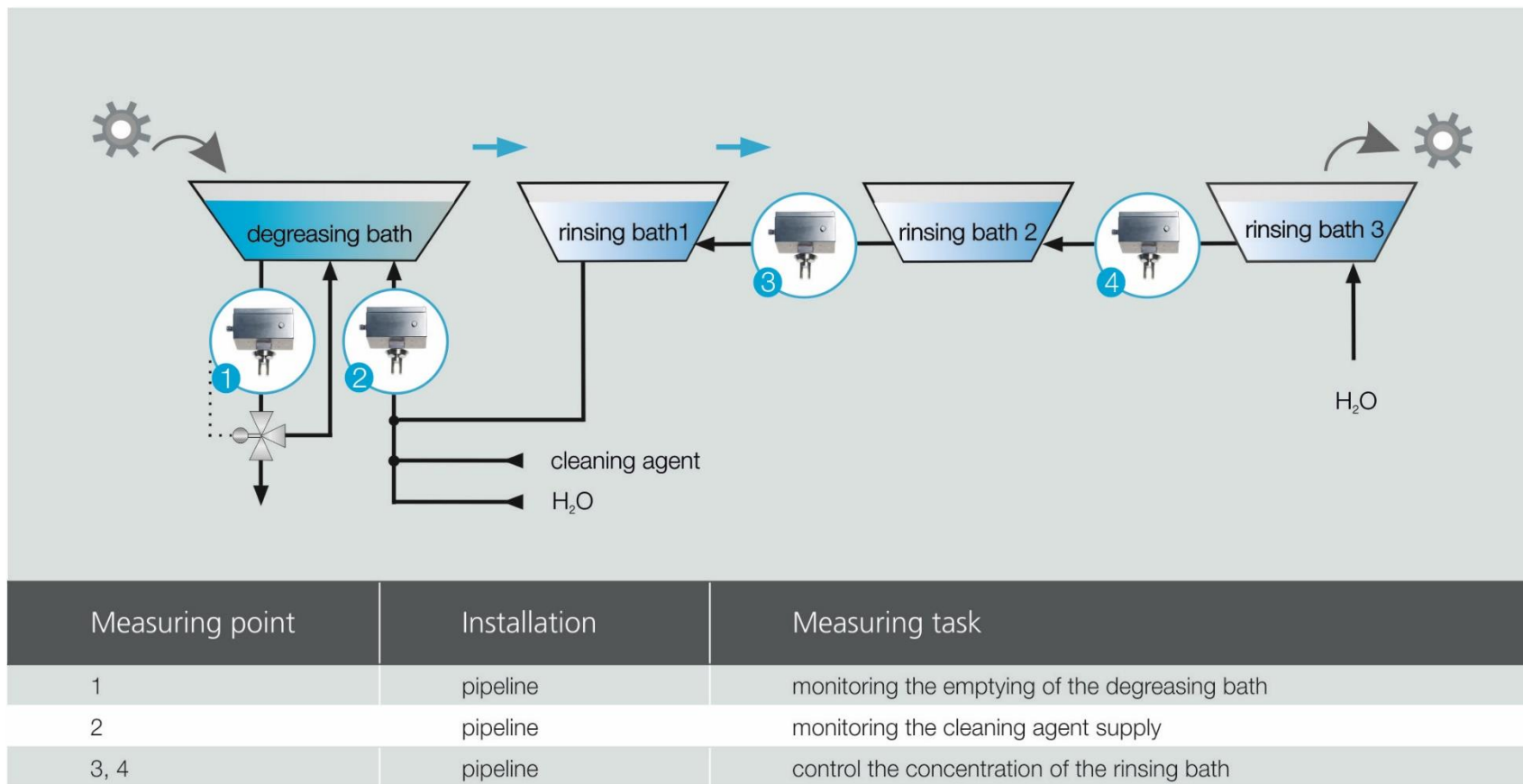
Cleaning and rinsing

- concentration monitoring of cleaning agent while cleaning and rinsing
- detection of liquid carryovers while rinsing cascade
- determination of impurity levels in batch processes
- numerous cleaning agents and processes
- mainly aqueous cleaners (e.g. Hakupur), including inorganic ingredients (builder) and tensides
- precise measurement of oil in halogenated solvents, e.g. perchlorethylene



Metal processing

Cleaning and rinsing



Metal processing

Cleaning and rinsing

Your benefits:

- avoid incorrect dosages and component damages
- prevention of faulty batches and rejects
- signaling when rinsing bath change is required
- reduction of manual sampling and laboratory costs
- no running costs, as LiquiSonic® works completely maintenance-free
- chemical resistance of the LiquiSonic® sensors through the use of special material (e.g. Halar)
- targeted and efficient process control through in-line measurement and real-time online information



Metal processing

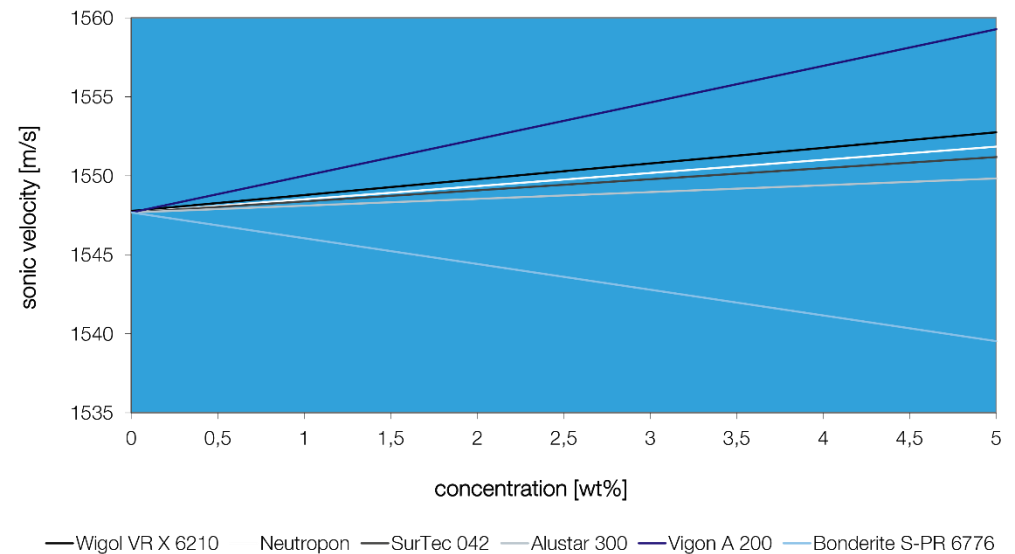
Coating

- coatings ensure optimum surface quality
- typical coating agents
 - adhesion promoters
 - corrosion protection
 - cleaning agents with protective functions

Your benefits:

- flexible installation of sensors even in small plants
- avoid overdosing and component damages
- optimal set up of the concentration for a resource-conserving handling
- chemical resistance of the LiquiSonic® sensors with special material, e.g. Hastelloy C2000
- traceability through a continuous documentation of the process control in the internal memory

Aqueous cleaning and coating agents



Metal processing

Hardening

- heating a component to hardening temperature and subsequent rapid cooling
- underdosing can lead to a too strong quenching
→ material cracks possible
- typical quenchants:
 - saline solutions
 - hardening polymers
 - quenching oils
 - Aquatensid
 - Polyquench

Your benefits:

- avoiding incorrect dosages
- preventing cracking
- insufficient hardening in case of overdose
- reproducible results through constant quenching
- targeted and efficient process control through in-line measurement and real-time online information
- ensuring optimum hardness of products

Automotive and aircraft

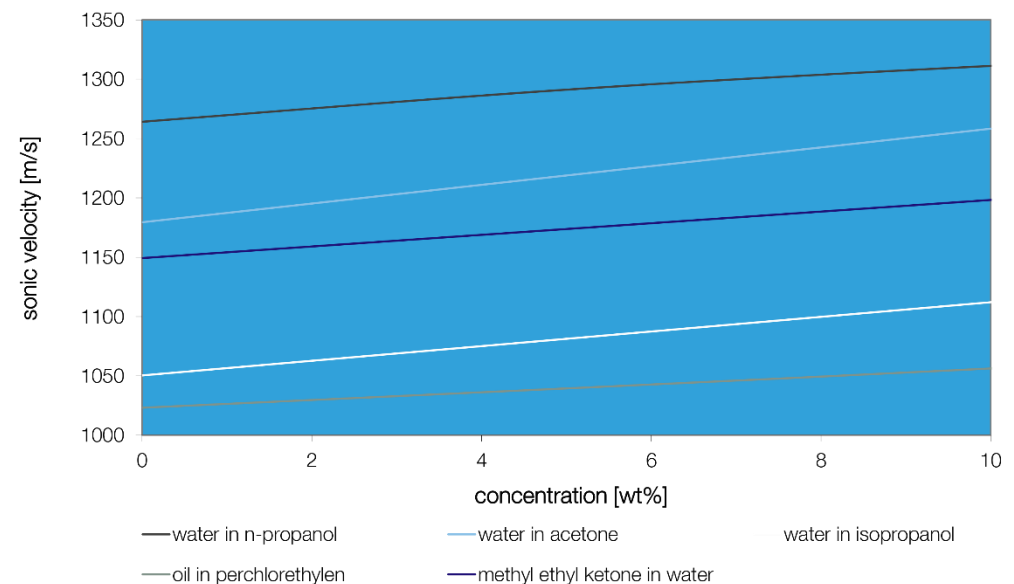
Treatment

- components with an complex geometry and very high cleaning requirements:
 - airbag generators
 - control elements
- halogenated solvents, e.g. perchlorethylene
- components are temporarily preserved before transport and storage (preservative agents)

Your benefits:

- detection of impurity levels in batch processes
- display required rinsing bath change
- optimal concentration control
- maximum cleanliness of the component
- fully automatic dosing through the incorporation into the process control system
- ATEX / IECEx approval of LiquiSonic®

Solvent-based cleaning



Electronics

Printed circuit board cleaning

- cleaning of flux residues on electronic assemblies and printed circuit boards
- high cleanliness requirements

Aqueous cleaner

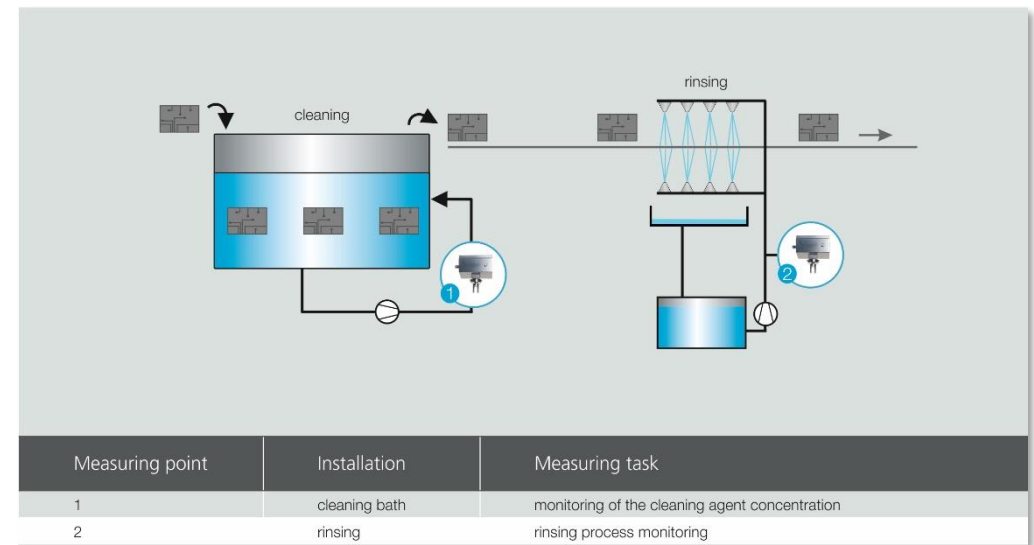
- Atron AC 200, 205
- Aquanox A4625, A4638
- Vigon A 200, 201, 300, AC 205, PM 101

Nonaqueous cleaner

- Zestron

Semiaqueous cleaner

- Axarel 32

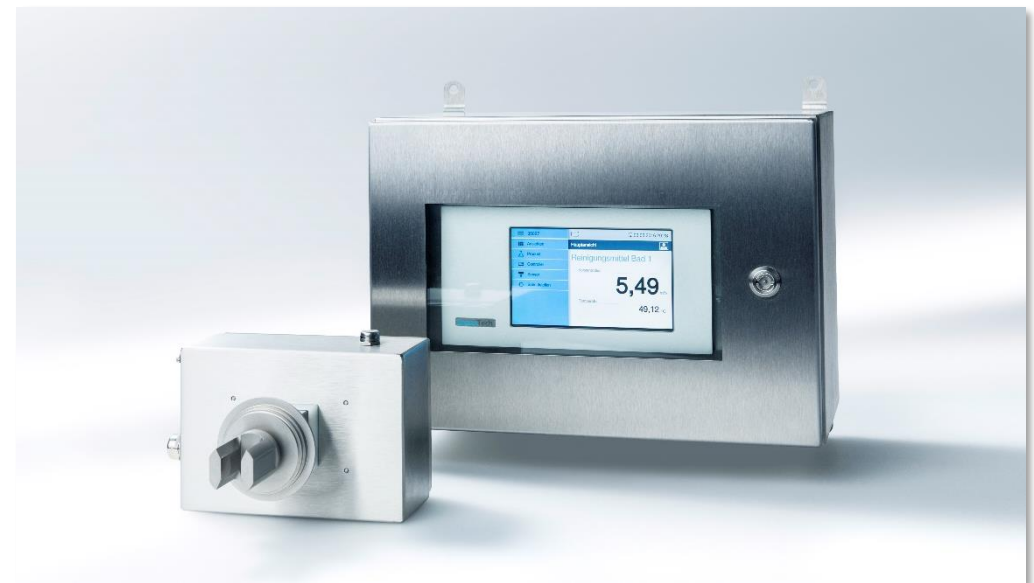


Electronics

Printed circuit board cleaning

Your benefits:

- optimal adjustment of detergent concentration
- display when rinsing bath change is required
- traceability through a continuous documentation of the process control in the internal memory
- use of LiquiSonic® in potentially explosive atmospheres due to the ATEX / IECEx approval
- flexible installation of the sensors even in small plants
- space-saving installation, especially in compact cleaning baths through optional remote sensor electronics



Plastics

Cleaning and rinsing

- surface cleaning of contaminations (release agents, abrasion and dust)
- removal of monomers, inhibitors and additives
- cleaning with pure solvents, e.g. isopropanol
- each cleaning bath requires a downstream rinsing procedure
- high cleanliness requirements, especially for:
 - medical devices and products
 - food plastics with antibacterial coatings
 - components before gluing, painting or coating

Your benefits:

- use of LiquiSonic® in potentially explosive atmospheres due to the ATEX / IECEx approval
→ solvents, e.g. n-propanol
- signaling when rinsing bath change is required
- optimal concentration regulation and thus a maximum cleanliness of the components
- low investment costs as up to four sensors can be connected to one LiquiSonic® controller
- traceability, especially in medical technology through a continuous documentation of the process control in the internal memory

Bath monitoring

Typical measuring tasks

Liquid	Application	Temperature	Concentration
Atron AC 205	PCB cleaning & defluxing	20 - 70°C (65 - 160 °F)	0 - 35 vol%
Aquanox A4625	cleaning flux residues & rosin	50 - 80 °C (120 - 180 °F)	0 - 20 wt%
Axarel 32	industrial cleaning of assemblies	20 - 50°C (65 - 120 °F)	0 - 15 wt%
Bonderite C-AK 1574	cleaning of aluminium	45 - 75 °C (110 - 165 °F)	0 - 30 g/l
Bonderite C-NE 3300	cleaning of metal surfaces	40 - 70 °C (100 - 160 °F)	0 - 5 wt%
Dansoclean A6100	cleaning and corrosion protection	40 - 70 °C (100 - 160 °F)	0 - 5 wt%
Dansoclean HP22C	cleaning of metal surfaces	40 - 70 °C (100 - 160 °F)	0 - 5 wt%
Dansoclean HP90	cleaning and corrosion protection	40 - 70 °C (100 - 160 °F)	0 - 5 wt%
Feroclean N 404	final cleaning of metal surfaces	40 - 70 °C (100 - 160 °F)	0 - 2 wt%
Gardoprep 5627	cleaning of metal components	35 - 55 °C (95 - 130 °F)	0 - 4 wt%
Hakupur 700	metal cleaning	40 - 80 °C (100 - 180 °F)	0 - 5 wt%
Umicore 614	tarnish protection	40 - 50 °C (100 - 120 °F)	0 - 5 wt%

Bath monitoring

Typical measuring tasks

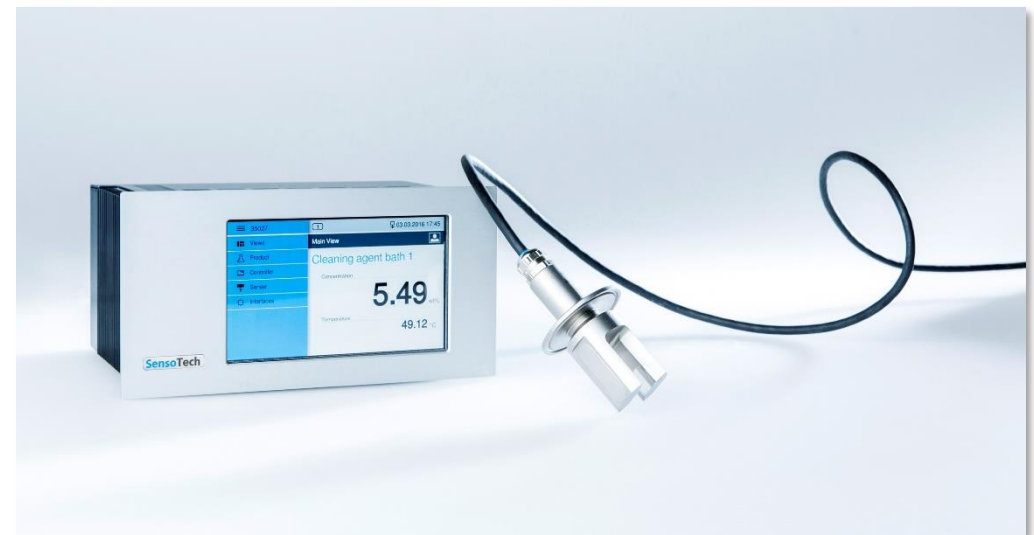
Liquid	Application	Temperature	Concentration
P3-Neutrapon 5088	metal cleaning	50 - 80 °C (120 - 180 °F)	0 - 5 wt%
Polyquench	hardening and quenching	20 to 70°C (65 - 160 °F)	0 - 20 wt%
Prevex 4748	corrosion protection	50 to 70°C (120 - 160 °F)	0 - 5 wt%
Renoclean MSO 3004	deburring and cleaning	45 - 75 °C (110 - 165 °F)	0 - 10 wt%
SurTec 086	cleaning and degreasing	45 - 65 °C (110 - 150 °F)	0 - 3 wt%
SurTec 138	ferrous metal cleaning	45 - 65 °C (110 - 150 °F)	0 - 3 wt%
Vigon A 200	PCB cleaning & defluxing	30 - 60 °C (85 - 140 °F)	10 - 30 vol%
Vigon A 201	cleaning flux residues	40 - 70 °C (100 - 160 °F)	5 - 20 vol%
Wigol VR X 81TA	metal, glas and plastics cleaning	50 - 70 °C (120 - 160 °F)	0 - 5 wt%
Zestron	solvent-based PCB defluxing	20 to 70°C (65 - 160 °F)	100 wt%
Zwez-Clean 5537C	metal cleaning	80 to 95°C (175 - 200 °F)	0 - 15 wt%

And many more. Ask SensoTech or our representative.

Bath monitoring

Devices

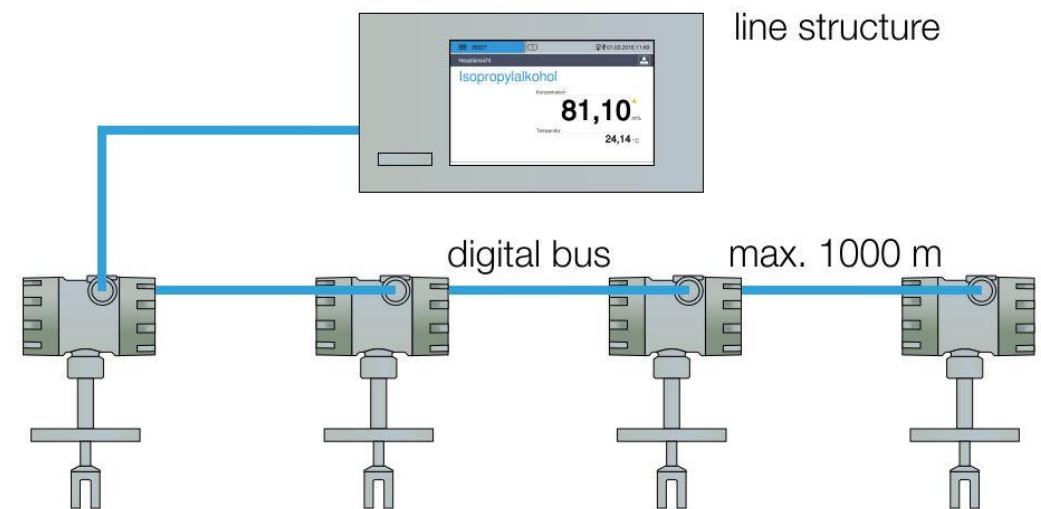
- LiquiSonic controller BathMonitor V10
- immersion bath sensor V10
- [available with separated electronic housing](#)
- immersion sensors for hazardous areas (ATEX and IECEx, zone 0 to 2) available
- max. temperature: 120 °C (optional 200 °C)
- process connection:
 - clamp DN50 (optional DIN, ANSI)
 - flow adapter for DN15 or 1/2" (ASME)
- interface and communication:
 - remote control via web browser
 - Ethernet and RS232-Interface
 - external data storage via USB
 - analog outputs: 4 x 4-20 mA
 - digital outputs: 6x electronic relays
 - optional: Profibus DP or modbus-RS485



Bath monitoring

LiquiSonic® BathMonitor

- low investment costs as up to four sensors can be connected to one LiquiSonic® BathMonitor
- typical monitoring of cleaning and rinsing bath (2 sensors with 1 LiquiSonic® BathMonitor)
- typical installation in bath bypass (liquid circulation)
- selection of up to 32 different products or characteristics
→ e.g. datasets for cleaning and rinsing or numerous cleaning agents
- diagnostic tools (trend view, error messages)
- optional SonicGraph
- special solutions for OEM customers available



Bath monitoring

References



We are committed to quality in every way.





In liquids, we set the measure.

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