

Measuring point	Installation	Measuring task
1	bypass pipe	Monitoring of cleaning agent concentration or contamination degree
2	circulation pipe	Rinsing process monitoring and cleaning liquid carryover control

# PCB Cleaning

## Introduction

In the manufacture of printed circuit boards, fiber-reinforced plastics are coated with copper layers. Subsequently, the conductor tracks are etched from the flat copper layers and the respective components are soldered to the circuit board.

The cleaning of printed circuit boards is an essential process step to remove impurities such as film-like or particulate residues from flux, resin or soldering paste. The impurities may cause electrical failures and corrosion of the circuit boards or assemblies. Often, single-chamber, multi-chamber and continuous flow cleaning systems are used for this purpose.

The purification process significantly influences the product lifetime and increases their reliability. As electrical parameters of the electronic components are being improved by purification, continuous bath control is of enormous importance.

## Application

The cleaning process of printed circuit boards consists of a cleaning step, followed by one or more aqueous rinsing steps. Often this is done in a spray cleaning system. Thereby, the precise dosed cleaning liquid is sprayed through nozzles on the assemblies.

Aqueous cleaners, such as Hakupur and Atron, and anhydrous cleaner, such as Zestron are common. An aqueous cleaning process basically offers the advantages that the cleaners have no flash point and only a very low VOC-content.

Through many years of experience, the LiquiSonic® analyzer is a reliable partner in bath control and convinces with precise concentration determination of different types of cleaners. LiquiSonic® provides real-time data and permanent data recording, which is essential for high product quality and to avoid rejects.

## Customer value

The inline LiquiSonic® analyzer enables the detection of the bath composition. The measured values are available online and will be forwarded directly to the process control system. Thus an immediate reaction to deviations of the measured value is possible, such as follow-on filling or bath replacement. Quality fluctuations are reliably prevented.

LiquiSonic® reduces extensive lab measurement:  
 time saving: 2 x 0.5 h per day  
 cost per hour: 50 € (60 \$)  
 total cost savings: 10.000 € (12,000 \$) per year

LiquiSonic® optimize processes:

- Rapid detection of quality changes
- Internal data storage for quality management
- Optimizing the lifetime of the cleaning baths
- Avoid overdosing or early bath changes
- Optimal cleaning performance (process safety)
- Avoid over- and underdosing to save material costs

## Installation

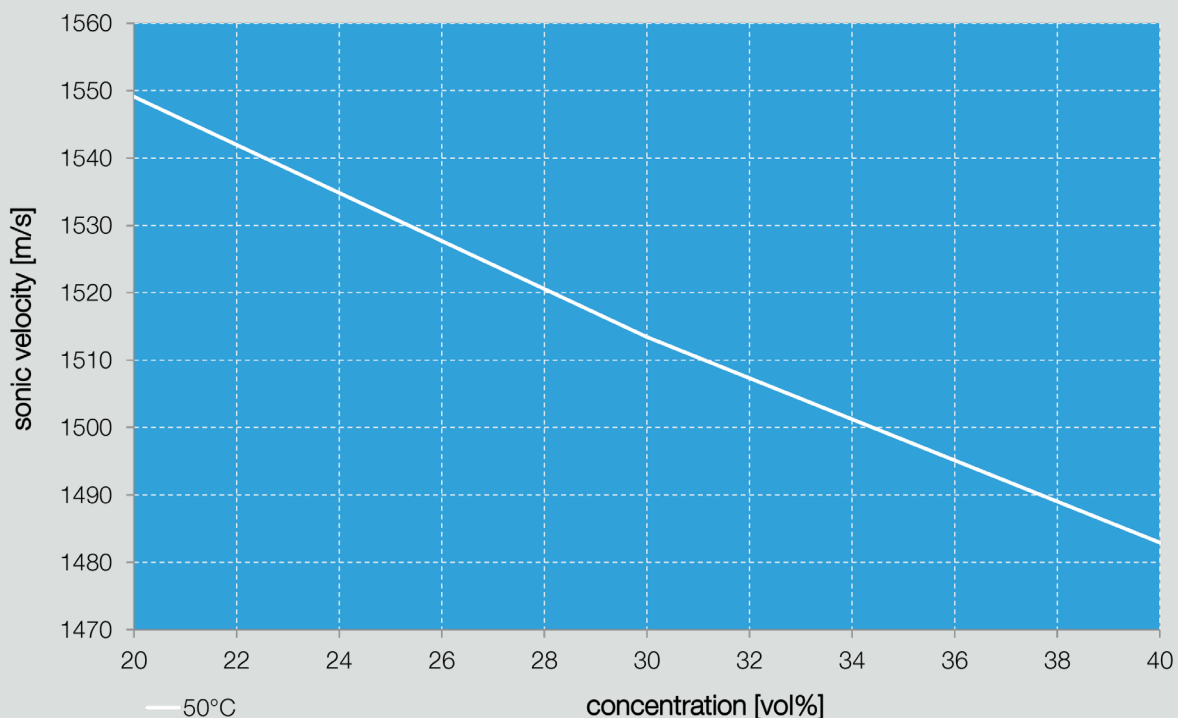
The LiquiSonic® sensors are preferably installed in the circulation circuit after the pump or directly into the cleaning or rinsing bath.

By using the LiquiSonic® Bath Monitor, up to four sensors can be connected, allowing the simultaneous monitoring of several measuring points.

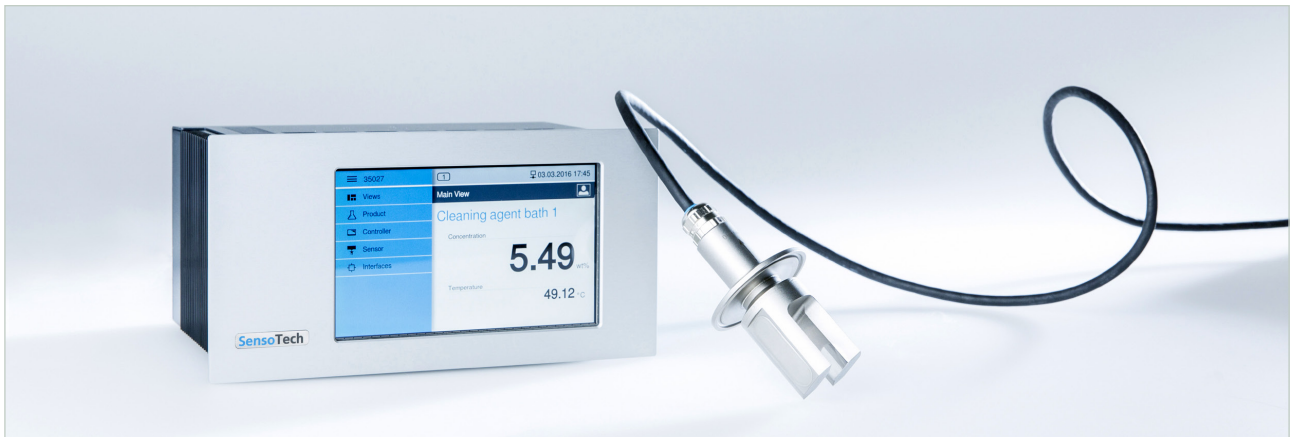
The sensor electronics is mounted in closed stainless steel housing with IP68 degree of protection, ideally suited for the process system cleaning with high-pressure washers. Bath monitoring in hazardous areas (non-aqueous cleaners) is made possible by sensors approved by ATEX, IECEx and FM.

Typical measuring range (e.g. Vigon A200):  
 concentration range: 20 to 40 vol%  
 temperature range: 30 to 60 °C

## LiquiSonic® sonic velocity measurement in an aqueous cleaner



## LiquiSonic® Bath monitoring



21007262  
LiquiSonic® Bath Monitor V10



21010119  
LiquiSonic® Cleaning bath sensor V10 with separated housing



21004463  
Field housing (stainless steel) for LiquiSonic Controller

BUS

21004435  
BUS connection: Profibus DP



21004449  
Network integration



21004110  
High power sensor electronic



21004202  
Bus cable indoor (100m)



21007846  
Factory acceptance test (FAT) certificate



**SensoTech GmbH**  
Germany  
T +49 39203 514 100  
info@sensotech.com  
www.sensotech.com

**SensoTech Inc.**  
USA  
T +1 973 832 4575  
sales-usa@sensotech.com  
www.sensotech.com

**SensoTech (Shanghai) Co., Ltd.**  
申铄科技(上海)有限公司  
电话 +86 21 6485 5861  
sales-china@sensotech.com  
www.sensotech.com