

# HORIBA

Semiconductor

N E W

Non-Contact  
Chemical  
Concentration Monitor  
CS-900



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**HORIBA**

# The next generation of Wet Process. HORIBA providing chemical concentration manag

In order to fulfil the tight chemical concentration control required in semiconductor WET process, HORIBA realizes higher functionality to meet the needs by designing compact equipment while maintaining stable measurement and carrying out operator safety through its original sensor design.

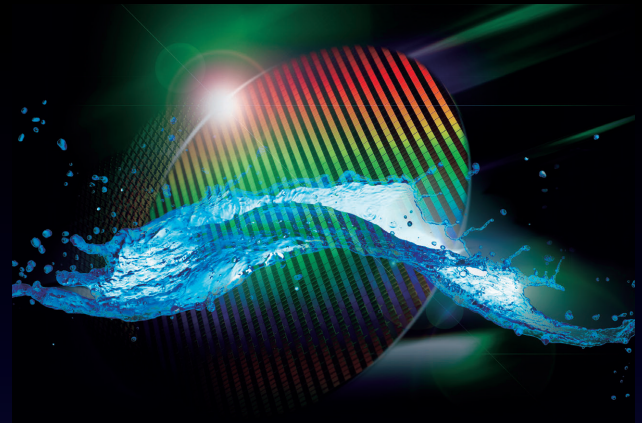
Non-Contact Chemical Concentration Monitor

## CS-900

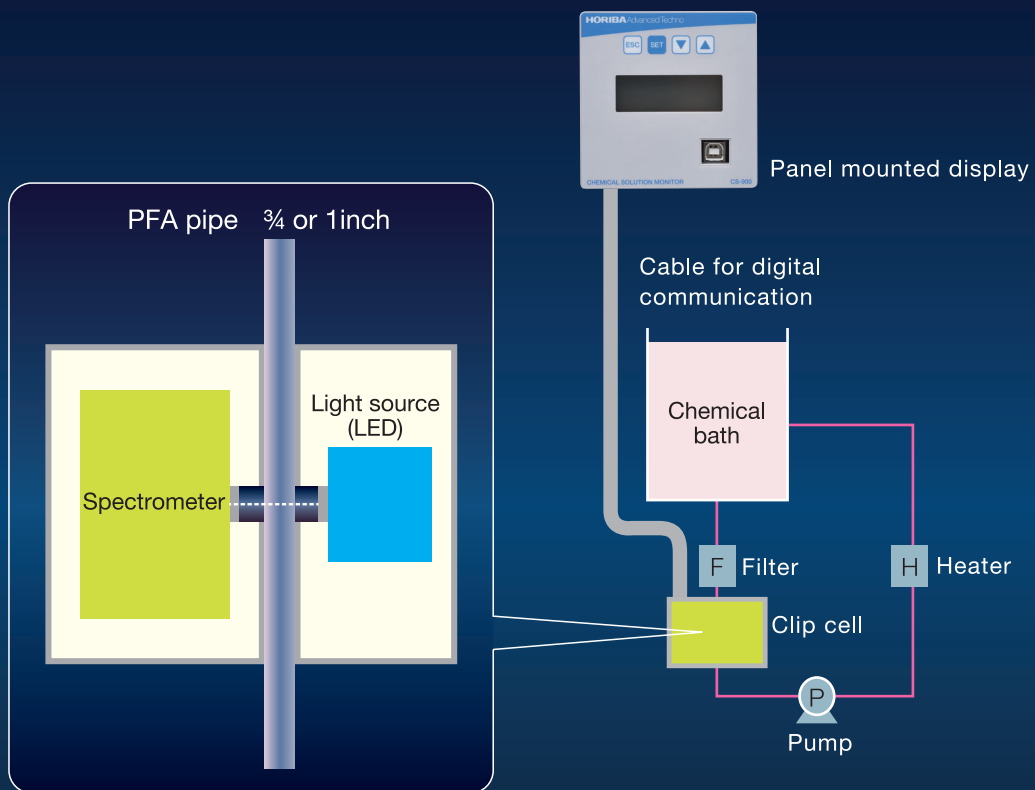
Completely non-contact measurement

Able to measure high temperature sample up to 80°C

Stable operation greatly reduces downtime



Optical design and amplifier without using optical fiber coupled with miniaturization of sensor increase degree of freedom in installation



# contributes to the optimization of process by equipment that increase yield rate.

## Completely non-contact and highly stable

Zero contamination is made possible by directly connecting a sensor externally to the PFA piping. This removes the need for plumbing construction when attaching the sensor, which reduces chemical accidents. In addition, by upgrading the optical system, the equipment has been made more compact while retaining the original specifications of CS-600F\*1.

### High quality and stable measurement

- Zero contamination
- Equipped with temperature compensation to enable stable measurement
- Equipped with HORIBA original algorithm to compensate influence of air bubbles.
- Same repeatability and stability with conventional CS-600\*1

### Suppression of vibration effects

- HORIBA adopts an optical system structure that is strong against misalignment and synergizes with HORIBA original piping construction.

### Longer lifespan of light source.

- Use of LED lamp Increases lifespan (5 years warranty)

### Improves work safety

- Semi-annually BG compensation cycle
- Piping installation is not required when installing the product, which helps to reduce accidents such as chemical leak.

### Space saving

- Light source and light detector have been integrated into cell unit.
- Panel mount display (9.6cm x 9.6cm)

\*1 CS-600 is HORIBA's optical fiber type chemical concentration monitor.

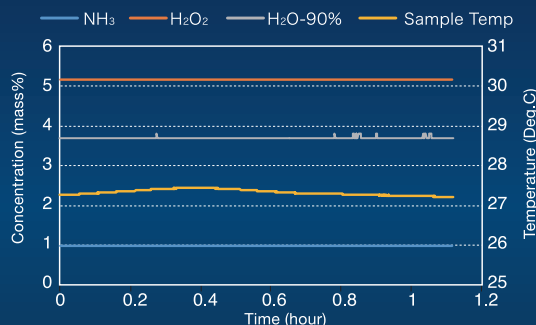
## Direct and stable measurement is made possible for chemical with wide temperature range (20°C to 80°C)

### ■ Stability

- ▶ Measurement Condition
  - Measurement Frequency: every 3 seconds
  - Moving Average: 16 times
  - Temperature: room temperature
  - Pipe Diameter: 3/4 inch

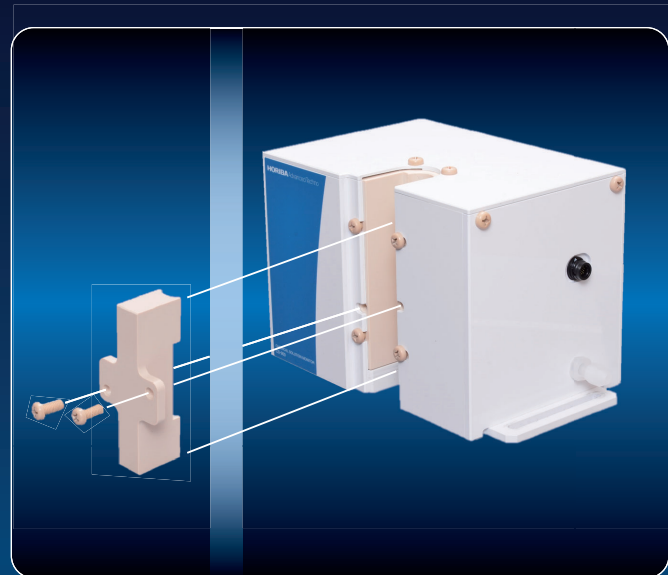
Initial Sample Concentration  
 NH<sub>3</sub> : 0.95% H<sub>2</sub>O<sub>2</sub> : 5.15% H<sub>2</sub>O : 93.9%

- ▶ Measurement result  
 Sample (real liquid) measured for 1 hour shows excellent stability.



	NH <sub>3</sub> (mass%)	H <sub>2</sub> O <sub>2</sub> (mass%)	H <sub>2</sub> O (mass%)	Temp. (Deg.C)
Average	0.974	5.169	93.70	27.32
Min	0.97	5.15	93.70	27.2
Max	0.98	5.18	93.80	27.4
Max error from Av	0.006	0.019	0.10	0.12
SD	0.005	0.006	0.02	0.07

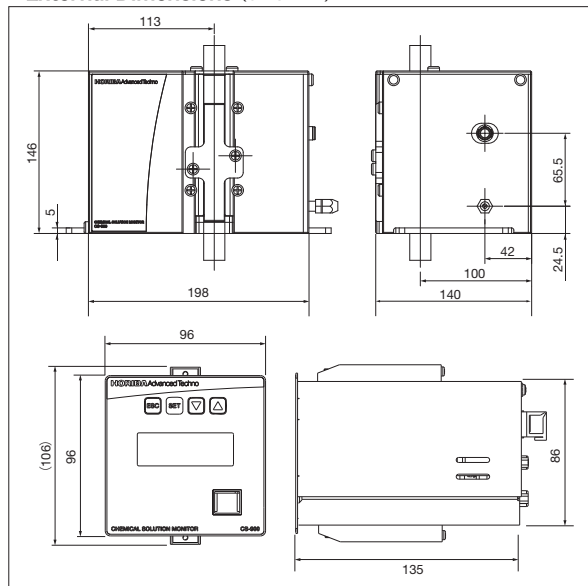
## Easy installation and removal made possible



■ Specification

Model name	Non-contact type chemical concentration monitor					
Model	CS-900					
Measurement method	Absorption spectroscopy					
Concentration calculation	Temperature compensated multivariate analysis					
Measurement range/ Repeatability (mass%)	Model name	Component	Measurable range	Repeatability	Analog output range	
		CS-900-1P-1P25P5	NH <sub>3</sub>	0.00%–1.20%	±0.05%	0.00–10.00
			H <sub>2</sub> O <sub>2</sub>	0.00%–5.50%	±0.10%	0.00–10.00
	CS-900-1P-P8P8	H <sub>2</sub> O	93.3%–100.0%	±1.0%		
		NH <sub>3</sub>	0.20%–0.80%	±0.03%	0.00–1.00	
		H <sub>2</sub> O <sub>2</sub>	0.20%–0.80%	±0.03%	0.00–1.00	
Conditions of measurement		1) Measurement Frequency : every 3 seconds 2) Moving average : 16 times				
Tube	PFA tube 1 inch or 3/4inch (Do NOT use anti-static type PFA tube)					
Sample condition*1	Sample temperature : 20 to 80°C Sample temperature, Atmospheric temperature fluctuation : ±1 degree C (period of time : 1 hour) Sample pressure : Less than 0.2 MPa(G) Sample pressure fluctuation : Within 0.02 MPa					
Power source	DC 24V					
Power consumption	Approx. 30W (Transient electric current at the time of start is excluded)					
Weight	Display unit : Approx. 0.9kg Sensor unit : Approx. 2.9kg					
Dimension (W×D×H)	Display unit : 96×135×96mm Sensor unit : 238×135×190mm					
Slanting angle	Sensor unit : Vertical direction within ±3 degree Lateral direction 0 to 90 degree					
Light source	5 years					
communication	Parallel I/O, RS-232C, Analog output					

■ External Dimensions (unit: mm)



\*1 Air bubble in sample solution effect on measurement so please flow sample to prevent bubble from remaining in the sensor unit.



The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System ISO45001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



**Applying to the EU RoHS Directive : This products is compliant with the restriction of the designated 6 hazardous substances(\*).**  
 (\* ) lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)  
**Using lead-free soldering : Lead-free soldering is used for mounting components of printed circuit boards.**  
 - Many countries consider the reinforcement of regulations concerning the risk caused by lead to human body and the environment



**Please read the operation manual before using this product to assure safe and proper handling of the product.**

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