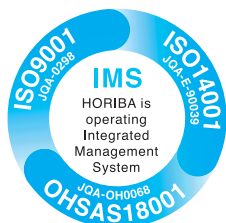


SPM Monitor

CS-150



High-speed response and compact profile make the SPM Solution Concentration Monitor the ideal choice for wafer and batch type cleaning devices
(H₂SO₄/H₂O₂/H₂O)

The CS-150 is a high-precision chemical concentration monitor designed for use with the SPM solutions used in semiconductor-manufacturing cleaning processes. Featuring fast response and a compact size, the CS-150 continually monitors the concentrations of the various components of the SPM solutions (H₂SO₄/H₂O₂/H₂O) used to remove metal ions and organic substances. Feedback control based on the monitor output is used to keep the concentrations of the SPM solutions within the allowable ranges and to eliminate unnecessary replacement of chemicals.

A short measuring cycle allows the accurate tracking of chemical concentrations, while the compact design facilitates integration with a cleaning device.

Features

Short 3-second measurement cycle supports concentration control for 300-mm processes

A short measurement cycle of approximately three seconds makes it possible to track concentrations at much closer to real time. Supports fine-tuned concentration control for batch-type-bath as well as single-bath cleaning devices.

Compact design helps reduce cleaning-device footprint

The compact design reduces the monitor's footprint by about a third*, reducing the amount of space required by the cleaning device. The monitor is easily integrated with the cleaning device.

*Based on comparison with the HORIBA CS-340 series.

Reduces lot defects in the cleaning process for improved yield

Output from the monitor is used for automated spiking control of the SPM solutions, enabling cleaning with a high reproducibility rate. As a result, lot defects decrease in the cleaning process, which helps to boost the overall yield.

Fully automatic measurement and simple control

All the user has to do is set up the SPM solution supply. Measurement is fully automatic, so no control whatsoever is required once the measurement has begun. Also, air is used for reference spectral measurement, removing the need for a utility water supply.

Comprehensive measures to eliminate air bubbles enable continuous measurement

A built-in bubble removal function removes air bubbles immediately before the flow cell, allowing continuous measurement of the solution as it is flowing.

24 V DC used for improved safety

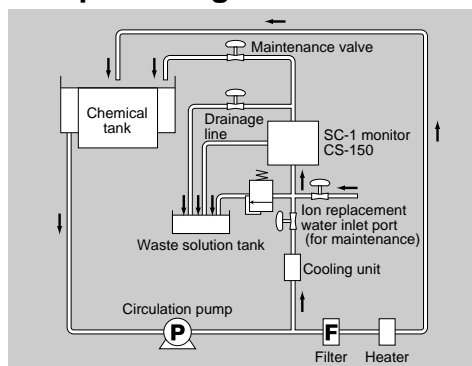
The monitor uses a low-voltage (24 V DC), and running on about 45 W gives it even better electric-shock safety and energy efficiency. An internal leakage sensor is also installed to detect solution leaks, so that the supply of SPM solutions can be shut off in the event of an emergency.

Specifications

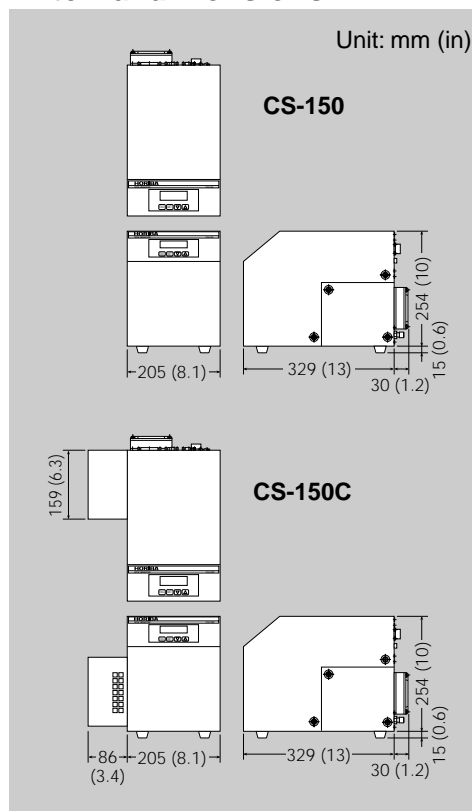
Model	CS-150	CS-150C	
Model specifications	No cooling unit	Integrated cooling unit	
Measurement sample	SPM (Sulfuric acid/Hydrogen peroxide aqueous solution)		
Measurement principle	Absorption spectrometry		
Concentration computation principle	Temperature-compensated multivariate analysis		
Measurement range	H ₂ SO ₄ : 50.0 to 90.0 % / 90.0 to 98.0 % H ₂ O ₂ : 0.00 to 10.00 % / 0.00 to 1.00 % H ₂ O: 8.0 to 50.0 % / 2.0 to 10.0 % Please consult HORIBA for information concerning other measurement ranges.		
Reproducibility (Peak to peak)	H ₂ SO ₄ : ±0.5 % / ±0.5 % H ₂ O ₂ : ±0.50 % / ±0.2 % H ₂ O: ±1.5 % / ±1.5 %		
Chemical conditions	Temperature	20 to 30°C	20 to 60°C
	Flow rate	20 to 60 ml/min.	20 to 40 ml/min.
	Pressure	0.10 to 0.20 MPa	
Measurement cycle	Approx. 3 seconds minimum (not including chemical replacement and cooling times)		
Equipment temperature	20 to 25°C		
Operation panel	1) Temperature level display: Sulfuric acid, Hydrogen peroxide, Water		
	2) Alarm display (Sulfuric acid, Hydrogen peroxide): Concentration low-low limit, Concentration low limit, Concentration high limit, Concentration high-high limit		
	3) Alarm value settings (Sulfuric acid, Hydrogen peroxide): Concentration low-low limit, Concentration low limit, Concentration high limit, Concentration high-high limit		
Serial input/output	RS-232C		
	1) Concentration data: Sulfuric acid, Hydrogen peroxide, Water		
Parallel input	12 to 30 V DC (photocoupler insulated)		
	Parallel concentration alarm (ON/OFF)		
Parallel output	Maximum current when open collector output is ON: 5 mA Maximum voltage when open collector output is OFF: 30 V		
	1) Alarm output: Sulfuric acid, Hydrogen peroxide: Concentration low-low limit, Concentration low limit, Concentration high limit, Concentration high-high limit		
	2) Device error (including liquid leakage)		
Analog output	4 to 20 mA (2 outputs: H ₂ SO ₄ : 50.0 to 100.0 %/H ₂ O: 0.00 to 10.00 %)		
	The analog output can be prepared to correspond to each requirement by users. (Please specify when ordering.)		
Power	24 V DC ±10%, 2 A		
Dimensions	205 (W) x 329 (D) x 269 (H) mm 8.1 (W) x 13 (D) x 10.6 (H) in	291 (W) x 329 (D) x 269 (H) mm 11.5 (W) x 13 (D) x 10.6 (H) in	
	Mass	Approx. 11 kg	
Connection pipe size	For inlet and outlet: Outer diameter 6 mm (inner diameter 4 mm)		
Pipe connection	Nippon Pillar Super type		

Please consult Horiba concerning any specifications not listed above.

Sample configuration



External dimensions



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

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<http://www.horiba-semi.com> e-mail: info@horiba.co.jp

● HORIBA, Ltd.

Head Office
2 Miyano Higashi, Kisshoin
Minami-ku, Kyoto, Japan
Phone: 81-75-313-8123
Fax: 81-75-321-5725

Tokyo Sales Office
1-7-8 Higashi-Kanda
Chiyoda-ku, Tokyo, Japan
Phone: 81-3-3861-8231
Fax: 81-3-3861-8259

TAIWAN Representative Office
3F, NO.18 Lane 676, Chung
Hua Rd, Chupei City,
Hsinchu Hsien, 302, Taiwan
Phone: 886 (3) 656-1012
Fax: 886 (3) 656-8231

● HORIBA TRADING CO., Ltd.

Shanghai Office
Room 1103, United Plaza,
1468 Nanjing Rd. West,
Shanghai, 200040, China
Phone: 21-3222-1666
Fax: 21-6289-5553

Beijing Office
Room 609, Jin Bao Plaza,
89 Jin Bao Street,
Dongcheng District, Beijing,
100005 China
Phone: 10-6522-7573
Fax: 10-6522-7582

● HORIBA KOREA Ltd.

112-6 Sogong-Dong
Choong-ku, Seoul, Korea
Phone: 82-2-753-7911
Fax: 82-2-756-4972

● HORIBA INSTRUMENTS Pte. LTD.

10 Ubi Crescent
#05-11/12, Ubi Techpark
Singapore 408564
Phone: 65-6745-8300
Fax: 65-6745-8155

● HORIBA INSTRUMENTS INCORPORATED

Irvine Facility
17871 Armstrong Avenue
Irvine, CA 92614, U.S.A.
Phone: 1-949-250-4811
Fax: 1-949-250-0924

● HORIBA / STEC INCORPORATED

Sunnyvale Office
1080 E. Duane, Suite. A
Sunnyvale, CA 94086
U.S.A.
Phone: 1-408-730-4772
Fax: 1-408-730-8975

● Austin Office

9701 Dessau Road
Suite 605, Austin
Texas 78754, U.S.A.
Phone: 1-512-836-9560
Fax: 1-512-836-8054

● Portland Office

10240, SW Nimbus Ave.
Suite L-5, Portland,
OR 97223, U.S.A.
Phone: 1-503-624-9767
Fax: 1-503-968-3236

● HORIBA INSTRUMENTS LIMITED

Kyoto Close
Summerhouse Road
Moulton Park, Northampton
NN3 6FL, U.K.
Phone: 44-1604-542600
Fax: 44-1604-542696
e-mail: hil.semicon@horiba.co.jp

● Grenoble Office

BURO club Gieres,
2 Avenue de Vignate
38610 Gieres, France
Phone: 33-4-76-63-4915
Fax: 33-4-76-54-0399

● Netherlands Office

Bijsterhuizen 11-58,
6546 AS Nijmegen,
The Netherlands
Phone: 31-24-366-0985
Fax: 31-24-366-0987

● HORIBA EUROPE GmbH

Head Office
Hans-Mess-Str.6,
D-61440 Oberursel/Ts.
Germany
Phone: 49-6172-1396-0
Fax: 49-6172-137385

Dresden Office
Zur Wetterwarte 10
Haus 109
01109 Dresden
Germany
Phone: 49-3518-896807
Fax: 49-3518-896808

HORIBA FRANCE
12, Avenue des Tropiques
91955 LES ULIS
France
Phone: 33 (1) 69-29-96-23
Fax: 33 (1) 69-29-95-77

HORIBA SWEDEN
Hertig Carlsväg 55-57
S-15138 Södertälje
Sweden
Phone: 46-8-550-80701
Fax: 46-8-550-80567

HORIBA ITALY
Europalace
Corso Torino 43/45
10043 Orbassano, Torino, Italy
Phone: 39-011-9004601
Fax: 39-011-9000448

● HORIBA GmbH

Kaplanstrasse 5
A-3430 Tulln,
Austria
Phone: 43-2272-65225
Fax: 43-2272-65230

HORIBA CZECHIA
Organizaci slozka Praha
Petrohradská 13
CZ-101 00 Praha 10,
Czech Republic
Phone: 420-2-717-464-80
Fax: 420-2-717-470-64

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