HORIBA
Semiconductor

For Semiconductor Manufacturing Process

Dissolved Oxygen in Low Concentration HF Meter

HD-960L

High stability measurement dissolved oxygen concentration in HF in wet processes of semiconductor devices.

CE marking compliant

The HD-960L has a range-switching function for measuring dissolved oxygen concentration from low to high concentration with the most appropriate range and resolving power. It is capable of meeting the measurement requirements most suitable for each process.
With a chemical resistant sensor, the HD-960L can supports a wide variety of dissolved oxygen measurements from those conducted in facilities to those in processes including chemical solution measurement other than low concentration HF and measurement in demineralized water.

●Automatic range-switching function

Automatically switches between three measurement ranges from ug/L to mg/L, making measurement possible with the most suitable resolving power.

●Easy-to-use calibration function

The HD-960L has a function for zero electricity/zero gas calibration and span calibration.

●Standard installation of communication function (RS-485)

It is possible to check measured value, change and control the settings in an instrumentation area apart from where the unit is used.

●Capable of measuring small samples

Can take measurements at a minimum flow rate of 15 ml/min.

Specifications Converter

Product name	Dissolved oxgen monitor		
Model	HD-960L		
Combined sensor unit	DO-100		
Combined sensor	5600 (Membrane polarography sensor)		
Measurement range	Dissolved oxygen: 0 to 20 mg/L, Temperature: 0 to 50°C		
Display resolution	Dissolved oxygen: 0.1ug/L (0.0 to 200.0 ug/L), 1ug/L (200 to 2000 ug/L), 0.01 mg/L (2.00 to 20.00 mg/L), Temperature: 0.1°C, 0.01°C		
Transmission output	Number of output: 4		
	Output setting: 4 to 20 mA DC or 0 to 20 mA, DC: input to output isolated type, Selectable from: Dissolved oxygen concentration, Temperature		
Contact output Contact input	Number of output: 5	Number of input: 1	
	ALARM contact R1 to R4 Contact type: Relay contact, SPST(1a) Contact function: Selectable from Upper / Lower limit alarm (ON/OFF control) at each measuring objects (concentration, temperature)	Contact input (IN) Contact type: No-voltage input contact Open-circuit voltage 24 V DC Contact function: Hold command	
	Self diagnosis contact RF Contact type: Relay contact, SPDT (1c)		
Communication	RS-485 (2 wire, input to output isolated type)		
Calibration function	Zero point calibration, span sensitivity adjustment		
Self-diagnosis function	Calibration error, temperature sensor diagnosis, converter error, communication error with sensor unit		
Power supply	24 V DC ±10% 15 W		
Conforming standards	CE Marking	EMC Directive (2004/108/EC), EN61326-1: 2006	
	FCC Rule	FCC Part15	
Mass	Approx. 550 g		

Cable

Product name	Cable			
Model	CK-05PS (Standard)	CK-03PS (Option)	CK-10PS (Option)	CK-20PS (Option)
Cable length	5 m	3 m	10 m	20 m
	Cable length: 20 m max.			

Sensor unit

Product name	Dissolved oxygen sensor unit		
Model	DO-100		
Measurement target	Dissolved oxygen concentration in pure water / Dissolved oxygen concentration in dHF (5000 ppm HF or less)		
Measurement range	Dissolved oxygen: 0 to 20 mg/L, Temperature: 0 to 50°C (Temperature compensation range:10 to 45°C)		
Performance	Repeatability·Linearity	0.0 to 200.0 ug/L	Within ±1% of FS
		200 to 2000 ug/L	Within ±1% of FS
		2.00 to 20.00 mg/L	Within ±1% of FS
		*Under the constant temperature condition at 25 °C	
	Response (T 90%)	Within 30 seconds *1 *Under the constant flow rate condition at 200mL/min	
Conditions measurement sample	Sample pressure	0 to 0.1 MPa	
	Sample flow rate	15 to 200 mL/min *2	
	Sample temperature	10 to 45°C	
	Sample HF concentration	0 to 5000 ppm	
Conditions calibration gas	Supply gases	Span gas calibration: CDA or Air, Zero gas calibration: N_2 (99.999%N_2 or higher)	
	Pressure	0.05 to 0.1 MPa *Constant pressure under specification while measurement	
	Flow rate	3 L/min or more *Constant pressure under specification while measurement	
Sample line inlet/outlet	Φ1/4 inch tube		
Purge N_2 inlet	Φ1/4 inch (Super 300 type PILLARFITTING) *3 Purge N_2 flow rate: 1 L/min or more, Purge N_2 Pressure: 0.1 MPa or less		
Ambient temperature	5 to 45°C		
Relative humidity	20 to 85% (without dew condensation)		
Storage temperature	-25 to 65°C		
Wetted material	Measurement cell: PFA, stirrer: PTFE, O-ring: FKM, temperature sensor: glass carbon		
Structure	Indoor-use, panel case cover: PVC		
Mass	Approx. 1 kg		

*1 Definition of T90: Measurement sample is changed to around span in each range from around zero.
*2 Drain the sample solution after measurement.
*3 N_2 purge is unnecessary if ambient of sensor unit is N_2.

Sensor

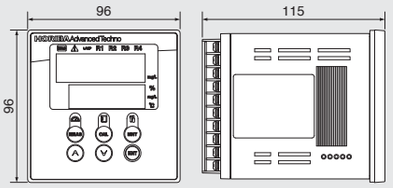
Product name	Dissolved oxygen sensor
Model	5600
Measurement principle	Membrane polarography
Measurement target	Dissolved oxygen concentration in pure water / Dissolved oxygen concentration in dHF (5000 ppm or less)
Measurement range	Dissolved oxygen: 0 to 20 mg/L
Ambient temperature	5 to 45°C
Relative humidity	20 to 85% (without dew condensation)
Storage temperature	0 to 65°C *4
Material	Membrane thickness: 25 um, Membrane material (Wetted): FEP, electrode material: Au, Ag, body material (Wetted): PP, O-ring material (Wetted): FKM, internal liquid: KCl + pH7 Buffer
Replacement period	12 month Under low concentration (1mg/L or less) used
	6 month Under high concentration (1mg/L or more) used

*4 Keep a sensor in an exclusive holder with seal water for preventing evaporation of internal liquid.

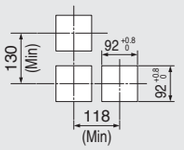
External dimension (Unit: mm)

■Converter

HD-960L

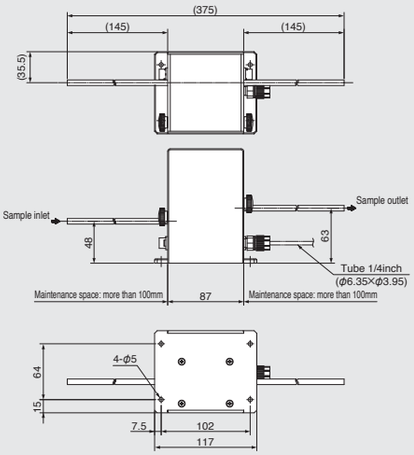


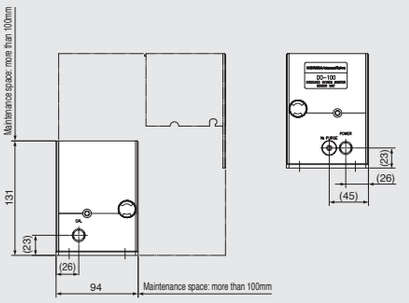
Panel cut size



■Sensor unit

DO-100





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

●The specifications, appearance or other aspects of products in this catalog are subject to change without notice. ●Please contact us with enquiries concerning further details on the products in this catalog.
●The color of the actual products may differ from the color pictured in this catalog due to printing limitations. ●It is strictly forbidden to copy the content of this catalog in part or in full.
●The screen displays shown on products in this catalog have been inserted into the photographs through compositing.
●All brand names, product names and service names in this catalog are trademarks or registered trademarks of their respective companies.

HORIBA Advanced Techno, Co., Ltd.

https://www.horiba-adt.jp

●HORIBA Advanced Techno, Co., Ltd.
Head Office
Phone: 81 (75) 313-8121

Tokyo Sales Office
Phone: 81 (3) 6206-4721

●HORIBA Korea Ltd.
Phone: 82 (31) 296-7911

●HORIBA (China) Trading Co., Ltd.
Shanghai Office
Phone: 86 (21) 6289-6060

Beijing Office
Phone: 86 (10) 8567-9966

●HORIBA Taiwan, Inc.
Phone: 886 (3) 560-0606

●HORIBA Instruments (Singapore) Pte Ltd.
Phone: 65 (6) 745-8300

●HORIBA Instruments, Incorporated
Sunnyvale Office
Phone: 1 (408) 730-4772

Austine Office
Phone: 1 (512) 836-9560

●HORIBA UK Limited
Phone: 44 (1604) 542-500

●HORIBA EUROPE GmbH
Head Office
Phone: 49 (6172) 1396-0

Bulletin: HAE-T0232A

Printed in Japan 1912SK13