

# Flow measurement of cooling water

## Mini Wheel Flowmeter

### W-2000/W-2000N

Compact impeller-type flowmeter

- Available for measuring low-temperature fluids
- Used for various cooling systems or semiconductor chillers



W-2000



## Mini Wheel Flowmeter

### W-3000

Compact impeller-type flowmeter

- Available for fluid temperatures of up to 150°C
- Wide flow range



Measurement target	Liquids in general
Flow range	Max.: 0.5 to 3 L/min; Min.: 6 to 60 L/min
Fluid temperature	-40 to 100°C
Fluid pressure	1.0 MPa max.
Process connection	Rc3/8, Rc1/2, Rc3/4
Material	SCS14, polycarbonate, NBR, FKM, EPDM, FVMQ, PPS, PTFE, quartz glass, HC-276

## Mini Turbine Flowmeter

### TW-080/TW-090

Compact impeller-type flowmeter

- Optimal for measuring the flow rate of various types of cooling water
- Cost-effective, general-purpose mini impeller flowmeter



TW-080



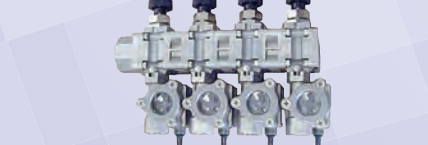
TW-090

## Mini Wheel Flowmeter

### W-1000

Compact impeller-type flowmeter

- Resin-type mini-impeller flowmeter; PTFE material available
- Applicable to a wide flow range
- Various outputs selectable



Measurement target	Liquid equivalent to water
Flow range	Min.: 0.6 to 3 L/min; Max.: 2 to 20 L/min
Fluid temperature	0 to 120°C
Fluid pressure	1.0 MPa max.
Connection	Rc3/4
Material	SCS14, SUS304, PPS, PTFE, quartz glass, PTFE, polycarbonate, NBR

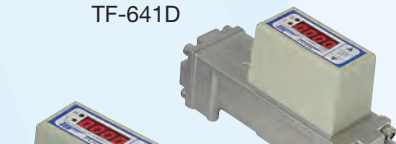
# Gas flow measurement

## Mini Thermal Mass Flowmeter

### TF-600D/600V

- Equipped with a highly legible indicator
- For measurement of air, nitrogen, and other gases
- The lineup includes models equipped with a flow control valve

Measurement target	Air, nitrogen, etc.
Flow range	Max.: 0 to 1,000 L/min (nor) Min.: 0 to 5 L/min (nor)
Fluid temperature	0 to 50°C
Fluid pressure	-0.05 to 0.75 MPa
Output	Pulse, current, alarm, RS485
Accuracy	±3% F.S.
Connection	Rc1/4, 1/4VCR, Rc3/8, 3/8SWL, 3/8VCR, Rc1/2, 1/2SWL, 1/2VCR, Rc3/4, 3/4SWL
Material	SCS16, SUS316, POM, Ni, polyimide, epoxy, fluororubber



TF-641D



TF-621V

# Flowmeters for Utility

## Clamp-on Ultrasonic Flowmeter

### UL330R

Standard model with simple functions

- For flow rate measurement of pure water in semiconductor pure-water systems, etc.
- Flexibly compatible with 25 to 400 A piping



Measurement target	Liquid
Function	Instantaneous flow rate indication, totaled flow rate indication, current output, pulse output, status output
Minimum flow range (water equivalent)	0 to 0.3 m/s
Max. flow range (water equivalent)	0 to 10 m/s
Process connection	25 A to 400 A
Pipe material	Metal and resin pipes

### UL350

UL330 with higher functionality

- Flexibly compatible with a wide range of 25 to 1,000 A piping
- Supports RS-485 digital communication



Measurement target	Liquid
Function	Instantaneous flow rate indication, totaled flow rate indication, current output, pulse output, status output, RS485 serial output (option)
Minimum flow range (water equivalent)	0 to 0.3 m/s
Max. flow range (water equivalent)	0 to 10 m/s
Process connection	25 A to 1,000 A
Pipe material	Metal, resin, and polyethylene-lined pipes

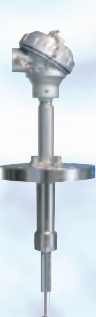
## Thermal Flowmeter

TH Series Thermal Flowmeter – Thermal Mass Flowmeter for Gases

- For flow rate measurement of various gases
- Enables measurement of mass flow rate unaffected by pressure and temperature fluctuations

### TH-1100

Insertion type sensor



Process connection	Piping nozzle flange (standard JIS 10K)
Pipe diameter	50 to 350 A, option 400 to 1,500 A
Fluid temperature	240°C max.
Operating pressure	1.0 MPa max.
Flow range	Max.: Air 0 to 681,490 m³/h (nor) Min.: Air 0 to 45 m³/h (nor)
Material	SUS304, SUS316, SUS316L, fluororubber

### TH-1200

Flange-mount sensor



Process connection	Piping nozzle flange (standard JIS 10K)
Pipe diameter	50 A to 150 A
Fluid temperature	160°C max.
Operating pressure	1.0 MPa max.
Flow range	Max.: Air 0 to 7,360 m³/h (nor) Min.: Air 0 to 5 m³/h (nor)
Material	SUS304, SUS316, SUS316L, fluororubber

### TRX-600

Converter

- Used in combination with the TH series



Housing structure	Equivalent to IP65
Indication	Upper row: 8-digit LED for instantaneous flow rate Lower row: 8-digit LED for totaled flow rate
Output	Pulse, current, alarm, RS485
Power supply	100, 110, 115 VAC ±10% 200, 220, 240 VAC ±10%
Accuracy	2.0% F.S. ±1 digit

Specification is subject to change without notice.

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**TOKYO KEISO**

# Flowmeters for Semiconductor Industry





Flowmeters for Semiconductor manufacturing equipment

High Precision Ultrasonic Flowmeter

UCUF-E/UCUF-K  
Ultrasonic flowmeter detector

- For high-accuracy measurement of ultrapure water and various chemical solutions of small flow rates
- All wetted parts are made of PFA with no moving parts or mechanical seals
- For processes requiring high cleanliness

Measurement target	Liquids in general
Fluid temperature	10 to 60°C
Fluid pressure	0.5 MPa max.
Accuracy	±1% R.D. (Flow velocity: 1 m/s or more)
Flow range	Max.: 0 to 80 L/min Min.: 0 to 50 mL/min
Dimensions	UCUF-E: 4 mm, 6 mm UCUF-K: 10 mm, 15 mm, 20 mm



SFC3000/SFC4000  
Ultrasonic flowmeter converter

- Used in combination with the UCUF-E or UCUF-K detector
- Compact and space-saving design
- Reduces the effect of air bubbles in the fluid compared with conventional models

Output	Pulse, current, alarm
Communication function	RS485
Power supply	24 VDC ±10%
Material	ABS resin
Ambient temperature	SFC3000: 0 to 60°C SFC4000: 0 to 50°C
Installation	SFC3000: DIN rail SFC4000: Panel mounting



Ultrasonic Flowmeter for Small Flow Rate

UCUF-02M/SFC-010L  
Ultrasonic flowmeter for small flow rate

- A minimum full-scale flow rate of 10 mL/min can be set
- Measures minute flow rates of ultrapure water and various chemical solutions with high accuracy
- All wetted parts are made of PFA for an ideal clean structure

Measurement target	Liquids in general
Fluid temperature	10 to 90°C
Fluid pressure	0.5 MPa max.
Output	Pulse, current, alarm
Power supply	24 VDC ±10%
Flow range	Max.: 0 to 100 L/min Min.: 0 to 10 mL/min
Dimensions	2.5 mm
Accuracy	±1% R.D. (Flow velocity: 1 m/s or more)
Indication	4-digit LED, instantaneous flow rate (mL/min)
Converter installation	DIN rail



Ultrasonic Flowmeter

UCUF-SB  
Ultrasonic flowmeter detector

- Straight type for easy piping layout
- For flow rate measurement of various chemical solutions, ultrapure water, and pure water
- All wetted parts are made of PFA with no moving parts or mechanical seals

Measurement target	Liquids in general
Fluid temperature	10 to 60°C
Fluid pressure	0.5 MPa max.
Accuracy	±1% R.D. (more than 800 mL/min)
Flow range	Max.: 0 to 3 L/min Min.: 0 to 50 mL/min
Dimensions	6 mm, 6.35 mm



SFC011SB  
Ultrasonic flowmeter converter

- Used in combination with the UCUF-SB detector
- A single converter can connect up to six detectors
- Outputs instantaneous and totaled flow rates and various status signals

Output	Pulse, current, alarm
Communication function	RS485
Power supply	24 VDC ±10%
Material	ABS resin
Ambient temperature	0 to 45°C
Installation	DIN rail

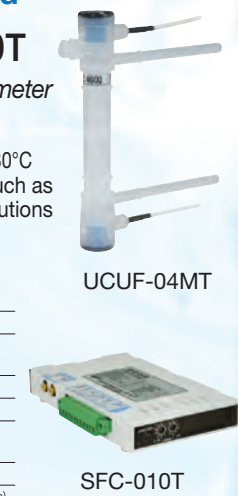


Ultrasonic Flowmeter for High-Temperature Liquid

UCUF-04MT/SFC-010T  
Small-diameter ultrasonic flowmeter for high temperature liquid

- Can measure fluid temperatures up to 180°C
- Measures high-temperature fluids such as pure water and various chemical solutions with high accuracy

Measurement target	Liquids in general
Fluid temperature	10 to 180°C
Fluid pressure	0.5 MPa max. (fluid temperature: less than 120°C)
Output	Pulse, current, alarm
Power supply	24 VDC ±10%
Flow range	Max. 0.8 to 2.0 L/min Min. 0.1 to 0.8 L/min
Dimensions	4 mm
Accuracy	±1% R.D. (Flow velocity: 1 m/s or more)
Indication	4-digit LED (instantaneous flow rate %)
Converter installation	DIN rail



Clamp-on Ultrasonic Flowmeter

UCL/  
SFC010C (1ch)  
SFC011C (6ch)

- Clamp-on ultrasonic flowmeter for PFA tubing
- Supports a wide range of tube sizes from small diameters up to 1 inch
- A single converter can connect up to six detectors

	UCL	SFC011C
Measurement target	Liquids in general	Liquids in general
Fluid temperature	10 to 60°C	10 to 90°C
Fluid pressure	0.5 MPa max.	0.5 MPa max.
Power supply	24 VDC ±10%	24 VDC ±10%
Flow range	Max.: 0 to 80 L/min Min.: 0 to 3 L/min	Max.: 0 to 150 L/min Min.: 0 to 20 L/min
Compatible tubing	PFA 6 mm, 8 mm, 10 mm, 6.35 mm, 9.53 mm, 12.70 mm, 19.05 mm, 25.40 mm	PFA 6 mm, 8 mm, 10 mm, 6.35 mm, 9.53 mm, 12.70 mm, 19.05 mm, 25.40 mm
Dimensions	6 mm, 6.35 mm	10 mm, 6.35 mm, 9.53 mm, 12.70 mm, 19.05 mm, 25.40 mm
Accuracy	±2% R.D. (more than 0.8 L/min)	±2% R.D. (more than 0.8 L/min)
Converter installation	DIN rail	DIN rail



Clamp-on Ultrasonic Flowmeter

GST/SFC011GS  
Guided-wave type clamp-on ultrasonic flowmeter

- Clamp-on ultrasonic flowmeter for small-diameter PFA tubing
- Enables flow measurement simply by clamping onto existing tubing
- A single converter can connect up to six detectors

	GST	SFC011GS
Measurement target	Pure water, photoresist, low-K material, thinner	Liquids in general
Fluid temperature	Room temperature (temperature variation ±0.5°C)	10 to 90°C
Fluid pressure	0.5 MPa max.	0.5 MPa max.
Power supply	24 VDC ±10%	24 VDC ±10%
Flow range	Max. 0 to 2.0 L/min Min. 0 to 0.5 L/min	Max. 0 to 2.0 L/min Min. 0 to 0.5 L/min
Compatible tubing	PFA 1/8", 1/4", 4 mm, 5 mm, 6 mm	PFA 1/8", 1/4", 4 mm, 5 mm, 6 mm
Dimensions	4 mm, 5 mm, 6 mm	4 mm, 5 mm, 6 mm
Accuracy	±2% R.D. (more than 0.8 L/min)	±2% R.D. (more than 0.8 L/min)
Converter installation	DIN rail	DIN rail



Ultrasonic Flow Monitor

UF  
PFA integrated ultrasonic flowmeter

- Converter-integrated ultrasonic flowmeters with Indicator
- Adopts a straight PFA tube
- Suitable for flow rate control of ultrapure water, pure water, water, chemical solutions, CMP slurries, etc.

Measurement target	Various liquids
Fluid temperature	10 to 90°C
Fluid pressure	0.5 MPa max.
Power supply	24 VDC ±10 %
Flow range	Max.: 0 to 150 L/min Min.: 0 to 20 L/min
Dimensions	1/2", 3/4", 1"
Accuracy	±2% F.S. (1 digit)



Ultrasonic Flow Monitor

UCF006  
Compact ultrasonic flow monitor

- Suitable for flow rate measurement of ultrapure water, pure water or water
- Compact and space saving design
- Low pressure loss

Measurement target	Pure water, water
Fluid temperature	10 to 80°C
Fluid pressure	0.5 MPa max.
Power supply	24 VDC ±10%
Flow range	0 to 8 L/min
Dimensions	6 mm
Accuracy	±2% R.D. (more than 1.7 L/min)

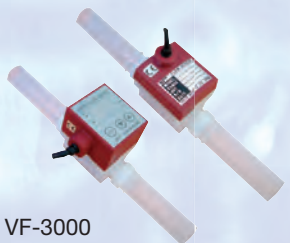


Vortex Flow Sensor

VF-2000/VF-3000

- Suitable for flow rate measurement of cooling water, ultrapure water, pure water, etc.
- Cost-effective, general-purpose vortex flow sensor

Model	VF-2000	VF-3000
Measurement target	Liquids in general	Liquids in general
Fluid temperature	10 to 70°C	10 to 90°C
Fluid pressure	1 MPa max.	1 MPa max.
Flow range	Max.: 4 to 40 L/min Min.: 0.5 to 4 L/min	Max.: 15 to 150 L/min Min.: 0.5 to 2.5 L/min
Dimensions	R3/8, R1/2	3/8", 3/4", 1"
Body material	PPS resin	New PFA



Flow Controller

FC6000/6500

- Flow rate controller of Separate type configuration consisting of an ultrasonic flowmeter, a control valve, and a converter
- Suitable for flow rate control of pure water, ultrapure water, chemical solutions, CMP slurries, etc.
- Enables wide-range flow rate control.



Measurement target	Liquids in general
Flow range	Max.: 0 to 10 L/min Min.: 0 to 2.5 mL/min
Fluid temperature	5 to 50°C
Fluid pressure	0.3 MPa max.
Output	Pulse, current, alarm, RS485
Material	SCS16, SUS316, POM, NI, polyimide, epoxy, fluororubber

Integrated Flow Controller

CLFC300/CLFC1000

- Integrated type for compact, space-saving installation
- Suitable for flow rate control of pure water, ultrapure water, chemical solutions, CMP slurries, etc.
- Uses a highly accurate PFA ultrasonic flowmeter for flow rate detection



Measurement and control target	Liquids in general (for stable measurement, the liquid should be free of air bubbles)
Flow range	Slurries (pinch tube valves): 50 to 500 mL/min For pure water and chemical solutions (needle valve) CLFC1000: 5 to 50 mL/min to 200 to 4,000 mL/min CLFC300: 5 to 50 mL/min to 200 to 2,000 mL/min
Max. operating pressure	0.4 MPa max.
Process connection	ø1/4" Super 300 type pillar fitting ø1/4" Flare type fitting
Material	PFA, PTFE (pinch tubes)

Small Variable Area Flowmeter

P series Purge meters  
Purge meters

- General-purpose small variable area flowmeter for measurement of a wide range of fluids from various gases to chemical solutions, pure water, and water
- Features on-site indication and alarm output
- Usable in various applications from equipment integration to process control

	P-880	P-510	P-771	P-710
Model	P-880	P-510	P-771	P-710
Measurement target	Gas	Gases, liquids	Liquid	Gases, liquids
Function	On-site indication	On-site indication, alarm output	On-site indication, alarm output	On-site indication, alarm output
Minimum flow range (water equivalent)	–	0.1 to 1 L/min	3 to 15 mL/min	3 to 30 mL/min
Max. flow range (water equivalent)	–	3 to 30 L/min	0.2 to 2 L/min	0.4 to 2 L/min
Min. flow range (air equivalent)	0.15 to 1.5 mL/min (nor)	2.5 to 25 L/min (nor)	–	50 to 500 mL/min (nor)
Max. flow range (air equivalent)	6 to 60 L/min (nor)	60 to 600 L/min (nor)	–	2 to 20 L/min (nor)
Face-to-face dimension	115, 130, 145 mm	200 mm	80 mm	79 mm
Process connection	Rc1/4, SW1/4, VCR1/4	Rc3/8	Rc1/8 Various fitting tube ends	Rc1/8 Various fittings
Alarm	–	UL-compliant reed switch Optical alarm unit	Optical alarm unit	Optical alarm unit
Material	SCS14/SUS316	SCS14/SUS304	PFA	ETFE

