

Flow measurement of cooling water

Mini Wheel Flowmeter

W-2000/W-2000N

Compact impeller-type flowmeter



Mini Wheel Flowmeter

W-3000

Compact impeller-type flowmeter

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



Mini Turbine Flowmeter

TW-080/TW-090

Compact impeller-type flowmeter



Manifold mini-wheel Flowmeters

MU-1000

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



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	SUS304, SUS316, 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	SS316, SUS316, POM, Ni, polyimide, epoxy, fluororubber

TF-641D



TF-621V

Flowmeters for Utility

Mini Wheel 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 in general
Flow range	Max.: 0.5 to 3 L/min; Min.: 6 to 60 L/min
Fluid temperature	5 to 150°C
Fluid pressure	1.0 MPa max.
Dimensions	Rc3/8, Rc1/2, Rc3/4
Material	SCS14, SUS316, PPS, PTFE, quartz glass, FKM, FVMQ

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
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

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 32A 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	180°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: 6-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.

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



Clamp-on Ultrasonic Flowmeter

UCL/UFC010C (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

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

IUF

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.
- Enables wide-range flow rate control.

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)



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.
- Uses a highly accurate PFA ultrasonic flowmeter for flow rate detection

FCA6000	FCV-3400
UCUF-E	FCV-3400

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

Flow range	Slurries (pinch tube valves): 50 to 500 mL/min For pure water and chemical solutions (needle valve): 5 to 50 mL/min to 200 to 2,000 mL/min
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Max. operating pressure	0.4 MPa max.
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Process connection	Φ1/4" Super 300 type pillar fitting
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Material	PFA, PTFE (pinch tubes)
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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

CLFC300	CLFC1000
FCV-3400	FCV-3400

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): 5 to 50 mL/min CLFC300: 5 to 50 mL/min to 200 to 2,000 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

Max. operating pressure	0.4 MPa max.
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Process connection	Φ1/4" Super 300 type pillar fitting
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Material	PFA, PTFE (pinch tubes)
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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
Measurement target	Gas	Gases, liquids	Liquid
Function	On-site indication	On-site indication, alarm output	On-site indication, alarm output
Minimum flow range (water equivalent)	–	0.1 to 1 L/min	3 to 30 mL/min
Max. flow range (water equivalent)	–	3 to 30 L/min	0.4 to 2 L/min
Min. flow range (air equivalent)	–	0.15 to 1.5 mL/min (nor)	50 to 500 mL/min (nor)
Max. flow range (air equivalent)	–	2.5 to 25 L/min (nor)	2 to 20 L/min (nor)
Fluid temperature	10 to 70°C	10 to 90°C	70 mm
Fluid pressure	1 MPa max.	1 MPa max.	ETFE
Face-to-face dimension			