

## **OUTLINE**

The UCUF-SB ultrasonic flowmeter is designed for measuring low flow rate of hyperpure water or various chemical fluids. All the fluid contact portion are made of PFA for the semiconductor industry, and the flowmeter has no movable portion nor mechanical sealing such as O-ring which may cause fluid detention. This flowmeter is most suitable for processes requiring high-level cleanliness of semiconductor manufacturing equipment, etc.

The SFC011SB is a converter for UCUF that enables simultaneous measurement of up to 6 lines. Using state-of-the-art technologies such as Digital Signal Processing, the converter has reduced significantly the adverse effects caused by the bubbles contained in semiconductor and chemical liquid handling processes.



## **FEATURES**

- ☐ Energy saving and space saving  
One SFC011SB unit enables simultaneous measurement of up to six lines. In addition, daisy chaining of multiple units without resorting to crossover wiring is possible.
- ☐ High-speed processing  
30-ms processing.
- ☐ Zero adjustment  
By performing zero adjustment before measurement, you can start the measurement for the fluid under the optimum conditions.
- ☐ Abundant functions
  - 7Seg LED (red, 4 digits) indicates instantaneous flow rate and status.
  - Various analog outputs of instantaneous flow rate (select according to output types).
  - Frequency output (1 kHz F.S.), error output, instantaneous flow rate upper/lower limit alarm, integrated flow rate output, and integrated flow rate upper limit alarm (open collector).
  - RS-485 communication enables parameter settings and flow rate data acquisition.  
\* RS-485 communication converter (sold separately) is required.
- ☐ Applicable standards
  - Applicable EMC standards: EN61326-1 and EN61326-2-3
  - RoHS2 compliant

## STANDARD SPECIFICATIONS

### • Detector specifications

Flow range	: 04SB : 0 to 50 mL/min (minimum) 0 to 3000 mL/min (maximum)
Standard calibration accuracy	: 04SB : $\pm 1\%$ R.D. of the indicated value (800 mL/min or more) $\pm 8$ mL/min (below 800 mL/min) * When using water of 23°C
Process connection	: PFA tube end
Connecting tube size	: O.D.6 mm, 1/4"
Protection category	: Equivalent to IP65 (for indoor installation)
Installation	: M3 through hole (2 elongated slots of $\phi 3.2$ having a length of 5.2 mm) Body weight : Approx. 60 g Body material Body (fluid contact portion) material : New PFA (PFOA free) Body (housing) material : PPS Sensor/cable cap material : PP cap seal material : Fluororubber
Sensor cables	: 2 coaxial cables (IN/OUT)
Cable weight	: Approx. 70 g/piece
Cable length	: 3 m (Standard)
Sheath material	: PVC

### • Converter specifications

#### • Power supply I/O specifications

Power supply voltage	: 24 VDC $\pm 10\%$
Current consumption	: Approx. 350 mA
Inrush current	: Approx. 800 mA
Display	: 4 digits (instantaneous flow rate, status)
Digital output	: Select from frequency, integration, alarm, and error Open collector, duty 1:1 Load resistance within 30 V DC, 10 mA
Analog output	: 4 to 20 mA DC (Standard) Load resistance 500 $\Omega$ or less * The output type can be selected depending on the model.
Communication protocol	: RS-485 Half duplex, asynchronous Modbus Protocol, RTU mode Baud Rate 57.6kbps Data size 8bits Parity Even Stop bit 1bit Address Switch 1 to 32

#### • Function, configuration specifications

Parameter settings	: Settings by dedicated configuration software
Ambient temperature	: Single: 0 to 45°C, Combined: 0 to 25°C
Ambient humidity	: 30% to 80% RH (without condensation)
Installation	: DIN rail installation
Structure	: Equivalent to IP20 (indoor use)
Housing material, color	: Heat resistant ABS resin (white)
Mass	: Approx. 250 g (including power supply terminals)
Applicable detector	: UCUF-SB Series
Applicable standard	: Standards for EMC compliance: EN61326-1, EN61326-2-3 RoHS2 compliant

## FLUID SPECIFICATIONS

Measurement target	: All liquids (Without air bubbles. If using a mixture of liquids, it must be evenly dissolved.)
Fluid temperature	: +10 to +60°C
Ambient temperature	: 0 to +60°C
Fluid pressure	: 0 to 0.5 MPa (G)
Fluid sound speed	: 1000 to 2200 m/s
Fluid kinematic viscosity	: 0.3 to 40.0 mm <sup>2</sup> /s
Pressure loss	: Normal temperature water pressure loss (kPa) = $C \times Q^2$ C : 6.0 (04SB) Q : Flow rate (L/min)

## MODEL CODE

Converter (SFC011SB)

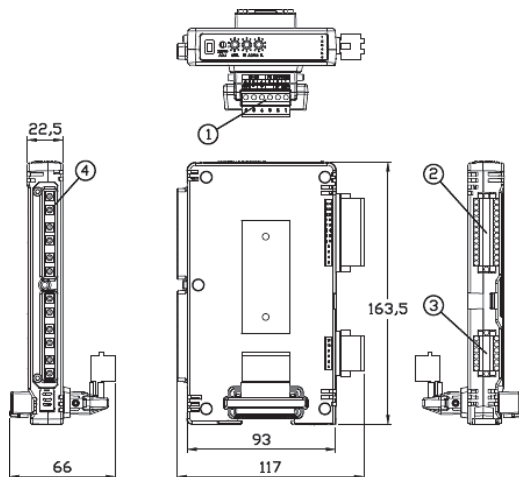
SFC011SB	-□	Description
Analog output	-0	4 to 20 mA
	-1	0 to 20 mA
	-2	1 to 5 V
	-3	0 to 5 V

Detector (UCUF-SB)

UCUF	04SB	□□□	□□	Tube Outer diameter [mm] x inner diameter [mm]
Tube		—	—	6 × 4
		063	—	6.35 × 4.35
Special specifications			/Z	

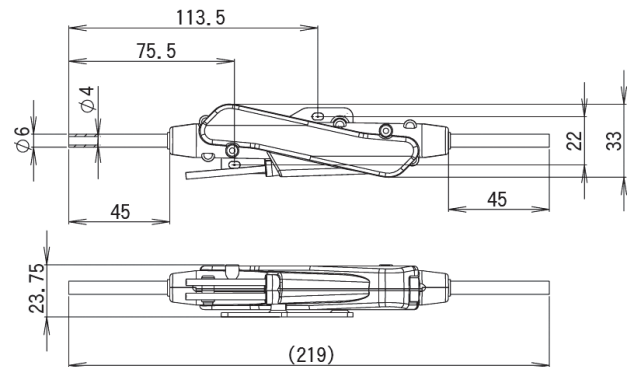
## OUTLINE DRAWING

Converter (SFC011SB)



Detector (UCUF-SB)

• UCUF04SB



## CONVERTER TERMINALS

① Power supply terminal

Terminal	Description
1	24 VDC
2	0 V
3	FG
4	RS-485+
5	RS-485-
6	SG

② Digital output terminal

Terminal	Description
1	CH1 output+
2	CH1 output-
3	CH2 output+
4	CH2 output-
5	CH3 output+
6	CH3 output-
7	CH4 output+
8	CH4 output-
9	CH5 output+
10	CH5 output-
11	CH6 output+
12	CH6 output-

\* Note: Terminals 13 to 24 are not used.

③ Analog output terminal

Terminal	Description
1	CH1 output+
2	CH1 output-
3	CH2 output+
4	CH2 output-
5	CH3 output+
6	CH3 output-
7	CH4 output+
8	CH4 output-
9	CH5 output+
10	CH5 output-
11	CH6 output+
12	CH6 output-

④ Sensor connector

CH6	6
CH5	5
CH4	4
CH3	3
CH2	2
CH1	1

\* Specification is subject to change without notice.

# TOKYO KEISO CO., LTD.

Head Office : Shiba Toho Building, 1-7-24 Shibakoen, Minato-ku, Tokyo 105-8558

Tel : +81-3-3431-1625 (KEY) ; Fax : +81-3-3433-4922

e-mail : overseas.sales@tokyokeiso.co.jp ; URL : <https://www.tokyokeiso.co.jp>