



TECHNICAL GUIDANCE

UCUF Ultrasonic Flowmeter

SFC-750 Blind Type Converter

for Low Flow Rate Applications

GENERAL

The **UCUF Series Ultrasonic Flowmeter** is designed for low flow rate applications. The flowmeter consists of the UCUF Flow Sensors, SFC-750 compact, blind type Signal Converter, and SFX-10 Handy Terminal. The non-wetted Sensor design, constructed of specific grade PFA material, makes the UCUF Series an ideal choice for semiconductor industry, where extreme cleanness of pipe line inside is of primary importance.

The SFC-750 utilizes the latest digital signal processing (DSP) technology and features significant reduction of adverse influence of bubbles in measured fluids which is a common headache problem in semiconductor and chemical processes.

The SFC-750 is the simplified version of the SFC-700, yet showing incomparable output stability.

- ❑ New signal processing has improved anti-bubbles capability of converter.

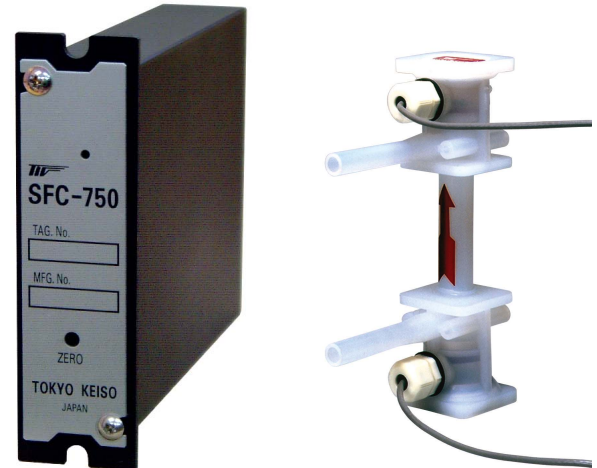
Normally, ultrasonic flowmeter has difficulty in measuring fluid containing bubbles, because the bubbles interfere with ultrasonic signal passage. In virtue of DSP and accumulated field experience, anti-bubbles capability has been remarkably improved.

(Excepting a fluid which contains dense, minute cloudy bubbles.)

- ❑ Compact converter package permits easy mounting onto space-valuable equipment housings for semiconductor manufacturing .
- ❑ Flowrate readout and setting buttons are housed in the common Handy Terminal.
- ❑ Accuracy $\pm 1\%$ of Reading.
(Flow velocity ≥ 1 m/s)
- ❑ Wide range ability of 100:1 (Typical)
- ❑ Low flow measurement down to 10 mL/min
- ❑ Measures viscous fluids up to 4.0×10^{-5} m²/s
- ❑ Corrosion resistant
- ❑ Easy installation with compact meter body
- ❑ Easy configuration with LCD display of the Handy Terminal.

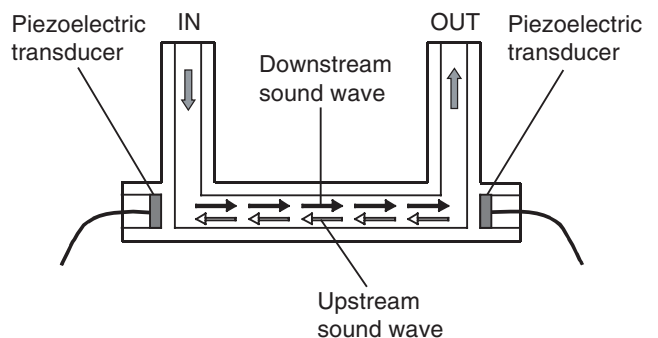
APPLICATIONS

- ❑ Pure water and ultra-pure water in semiconductor manufacturing plants
- ❑ Chemical Mechanical Polishing (CMP) slurries
- ❑ Chemical feeds
- ❑ Very low flow measurement of liquid



OPERATING PRINCIPLE

The fluid to be measured flows through the U-shaped tube. Two piezoelectric transducers, mounted at both ends of the measuring section, emit and receive an ultrasonic wave alternately. The wave propagating in direction with the fluid flow is accelerated and the wave travelling against the fluid flow is slowed. The difference in transit time of wave is proportional to the velocity of the fluid. The converter converts received ultrasonic wave signal into digital data, computes flowrate and transmits output signal. Stable transit time measurements is conducted with new signal processing, regardless fluctuation of wave signal level.



SPECIFICATION

- Sensor : UCUF-04P, -04B, -6B, -10B, -15B, -20B
- Sound Velocity of Fluid : 1000 to 2200 m/s
- Kinematic Viscosity : $0.3 \times 10^{-6} \text{ m}^2/\text{s}$ to $4.0 \times 10^{-5} \text{ m}^2/\text{s}$

SFC-750 Signal Converter

- Model Number Break Down :

SFC-750-X1X2

X1: 1 for 4,6,10mm Sensor

: 2 for 15,20mm Sensor

X2: 0 for 4-20mA Output

: 1 for 0-10V Output

- Output :

1) 4 to 20 mA

Load resistance : 0 to 500 ohms

or

0 to 10V

Source resistance : 500 ohms

Damping time constant : 0.2 to 10s

2) Scaled Pulse

Open collector / 30VDC, 50mA Max.

Pulse width : 0.5 ms (Max. 1000 Hz),

50 ms (Max. 10 Hz),

100 ms (Max. 5 Hz)

(Selectable per pulse rate at full scale)

Pulse rate : 10 to 1000 pps at full scale

3) Flow rate alarm / Total preset function

Open collector / 2 points

30VDC, 50mA Max.

Indication : LED, visible from front side

Relay action : NO (NC is available)

- Low Cut-off : 0 to 30% of full scale

- Linearizer : Automatic

: Manual / 15 line-segment approximation

- Data Back-Up : Parameters and Total counts by

EEPROM

- Communication : RS485 with Handy Terminal via accessory cable attached
- Zero Adjustment : accessible from front side
- Power Supply : 24VDC $\pm 10\%$
- Power Consumption : 120mA (300mA / starting)
- Ambient Condition : 0 to 50 °C / 30 to 80% RH
- Installation : Panel mounting, via two 5mm screws
- Enclosure Classification : IP20 (Indoor Use)
- Materials : Housing ; Aluminum alloy
- Color : Front panel and housing ; Black
Rear plate ; white alumite
- Mass : Approx. 300 g

Special Products :

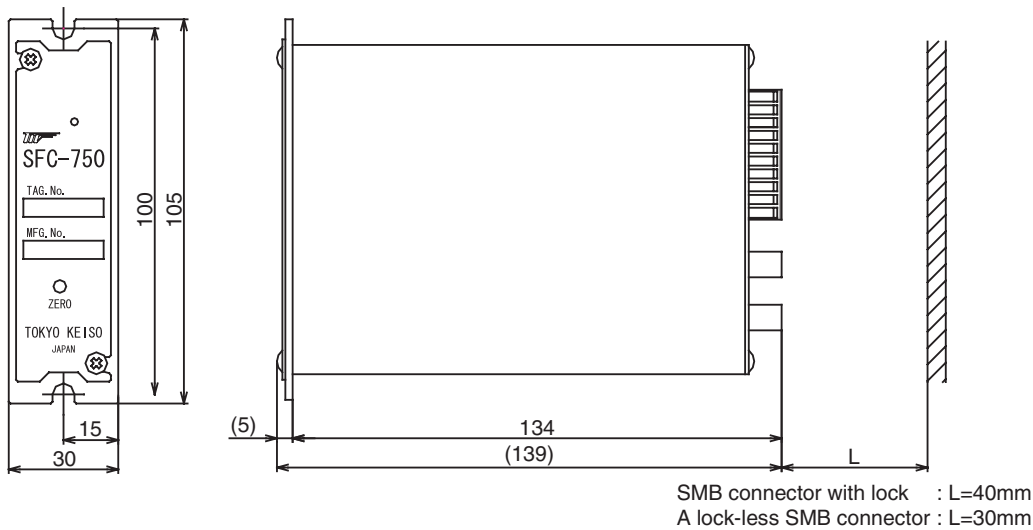
Followings are available as special, consults factory.

1. Pulse output selection, flow rate % proportional or empty sensor contact instead of volume.
2. Plus side output protection in stead of minus side when signal is lost.
3. Normal close alarm contacts.
4. Normal close preset contacts.
5. English flowrate units, GPM and GPH.

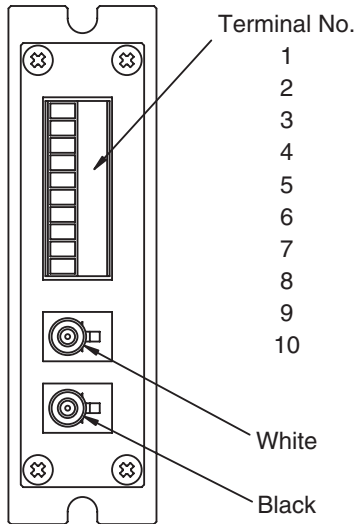
SFX-10 Handy Terminal

- Display : LCD / 2 line 16 char. alphanumeric (with back light illumination)
- Alarm Indicator : High/Low display
- Parameter Entry : By 4 key switches
- Power Supply : Two dry cells or AC source
- Power Consumption : 50mA w/o Back Light
- Ambient Condition : 0 to 50 °C / 30 to 80% RH
- Enclosure Classification : IP20 (Indoor Use)
- Materials and color : ABS, beige
- Mass : Approx. 300 g

Outline Dimensions

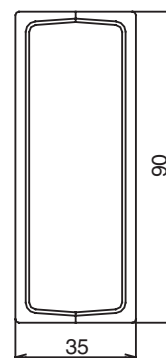
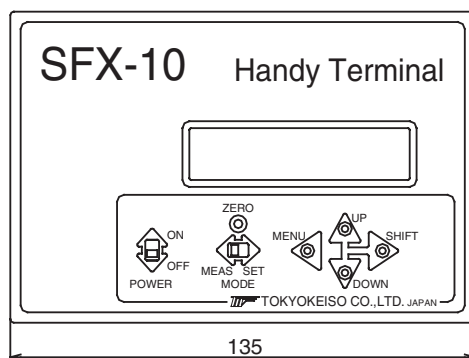
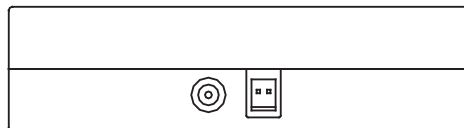
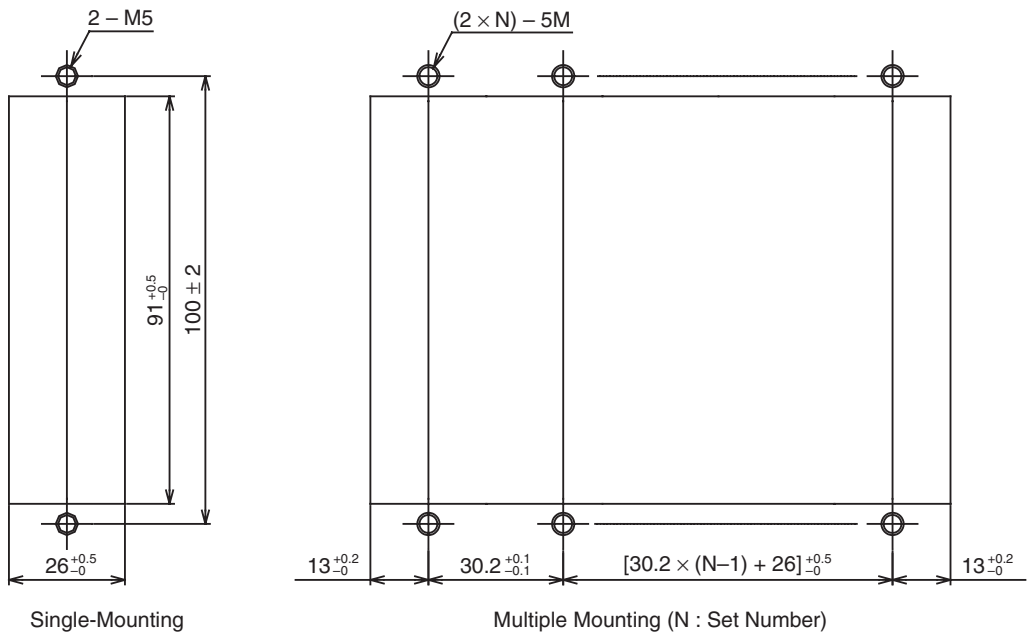


[Terminals]



Terminal	Polarity	Description
White	Inlet side	Sensor signal (Coaxial cable connector)
Black	Outlet side	
1	+	Power supply (DC 24V)
2	-	
3	⏏	FG (Grounding)
4	+	Output current 4-20mA or 0-10V
5	-	
6	+	Alarm H / Total Preset HH
7	-	Alarm common
8	+	Alarm Lo / Total Preset H
9	+	Pulse output
10	-	

[Panel Cutout]



* Specification subject to change without notice

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