UCL/SFC010C Clamp-On Ultrasonic Flowmeter



DESCRIPTION

UCL/SFC010C is a clamp-on ultrasonic flowmeter for PFA piping. There is no need for additional piping work because the flow rate can be measured just by sandwiching the existing tube. The piping is virtually kept clean.
This meter is most suitable for processes requiring cleanliness of semiconductor manufacturing equipment, etc.

FEATURES

- **Clamp-On:**
  The flow rate can be measured simply by sandwiching the existing tube with the meter. It is essentially clean because it does not come in contact with the inside of the pipe.
- **High-speed processing**
  10-ms high-speed processing
- **Zero adjustment**
  By performing zero adjustment before measurement, you can start the measurement for the fluid under the optimum conditions.
- **Abundant functions**
  - The seven-segment LED display (red, 4 digits) indicates the 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 setting and flow rate data acquisition.
    *RS-485 communication converter (sold separately) is required.
- **Applicable standard**
  - Applicable EMC standards: EN61326-1, EN61326-2-3
  - RoHS2 compliant

STANDARD SPECIFICATIONS

- **Flow detector UCL specifications**

Construction	: Equivalent to IP64 (indoor use, when installed to piping)
Product weight	: Approx. 270 g for small diameter (cable length 5 m)
	: Approx. 240 g for large diameter (cable length 5 m
Body material	: PPS (clamp band for large diameter: PP)
Product cable material	: PTFE coating

STANDARD SPECIFICATIONS CONTINUED

- **Converter SFC010C specifications**

Power supply I/O specification

Power supply voltage	: 24 V DC ±10%
Current consumption	: Approx. 160 mA
Inrush current	: Approx. 550 mA
Display	: 4 digits (instantaneous flow rate, status)
Digital output	: Selected from frequency, integration, alarm, and error. Open collector, duty 1:1 Load resistance 30 V DC, within 10 mA
Analog output	: 4 to 20 mA DC (standard) load resistance 500Ω 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	57.6 kbps
Data size	8 bits
Parity	Even
Stop bit	1bit
Address Switch	1 to 32

Function, configuration specification

Parameter setting	: Setting 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

When installing two or more meters, secure a space of at least 10 mm. When installing the meter in a closed environment, provide sufficient ventilation.

Structure	: Equivalent to IP20 (indoor use)
Housing material, color	: Heat resistant ABS resin (white)
Weight	: Approx. 150 g
Conforming detector	: UCL series
Applicable standard	: Applicable EMC standards: EN61326-1 and EN61326-2-3 RoHS2 compliant

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FLUID SPECIFICATION

Measurement target	: Liquids in general (without bubbles)
Fluid temperature	: 10 to 60°C
Ambient temperature	: 0 to 60°C
Fluid pressure	: 0 to 0.5 MPa
Sound velocity in the fluid	: 1000 to 2200 m/s
Kinematic viscosity of the fluid	: 0.8 to 40.0 mm^2/s

TUBE SIZE, FLOW RANGE, AND ACCURACY

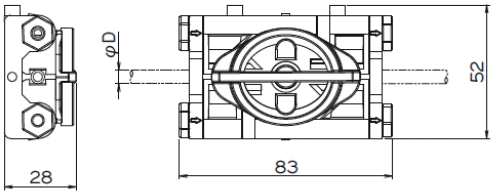
Connecting tube size Outer diameter [mm] × inner diameter [mm]		Flow range [L/min]	Flow rate [L/min]]	Accuracy *1 [L/min]	Flow rate [L/min]	Accuracy *1 [%R.D.]
mm size	6 × 4	0 to 3	0 to 0.8	±0.015	0.8 to 3	±2
	8 × 6	0 to 8	0 to 1.7	±0.034	1.7 to 8	±2
	10 × 8	0 to 8	0 to 3.0	±0.060	3.0 to 8	±2
Inch size	6.35 × 3.95	0 to 3	0 to 0.8	±0.015	0.8 to 3	±2
	6.35 × 4.35	0 to 3	0 to 0.9	±0.018	0.9 to 3	±2
	9.53 × 6.38	0 to 8	0 to 1.9	±0.038	1.9 to 8	±2
	9.53 × 7.53	0 to 8	0 to 2.7	±0.053	2.7 to 8	±2
	12.70 × 9.55	0 to 20	0 to 4.3	±0.085	4.3 to 20	±2
	19.05 × 15.90	0 to 50	0 to 11.8	±0.235	11.8 to 50	±2
	25.40 × 22.25	0 to 80	0 to 23.3	±0.464	23.3 to 80	±2

*1 Accuracy in factory calibration with purified water at 20°C.

OUTLINE DRAWING

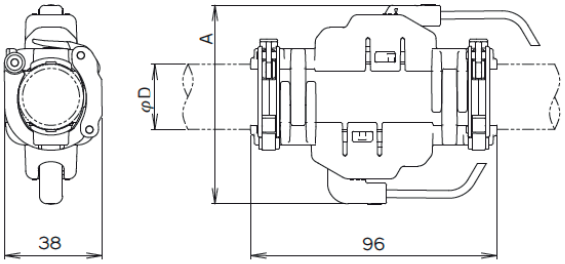
Detector (UCL)

Small diameter

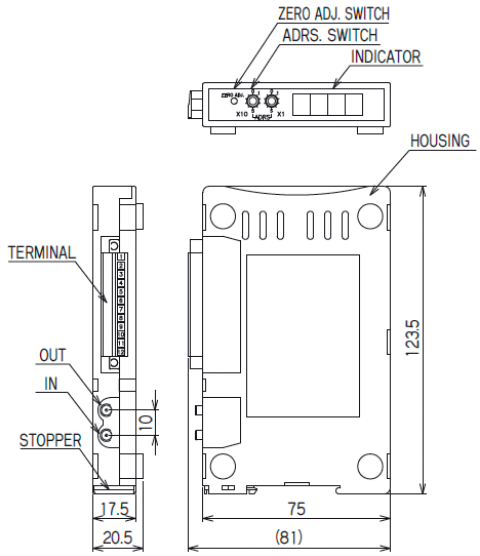


Category	Model code	Dimension [mm]	
		D	A
Small diameter	UCL060	6	–
	UCL080	8	–
	UCL100	10	–
	UCL063	6.35	–
	UCL095	9.53	–
Large diameter	UCL127	12.70	(65)
	UCL190	19.05	(71)
	UCL254	25.40	(78)

Large diameter



Converter (SFC010C)



Detector connector

Terminal	Polarity	Description
IN	Inlet	Sensor signal output
OUT	Outlet	

Power supply and I/O terminals

No.	Name	Polarity
1	Power supply (24 V DC)	+
2		–
3		FG
4	Analog output	+
5		–
6	Digital output 1	+
7	Digital output 2	+
8	Digital output 1, digital output 2 (common)	–
9	Digital output 3	+
10		–
11	Communication (RS-485)	+
12		–

MODEL CODE

Detector (UCL)

UCL		□□□	–□	–□	Connecting tube size Outer diameter [mm] × inner diameter [mm] *2
Connecting tube	mm size	060	–D	–	6 × 4
		080	–D	–	8 × 6
		100	–T	–	10 × 8
	Inch size	063	–D	–	6.35 × 3.95
			–T	–	6.35 × 4.35
		095	–D	–	9.53 × 6.38
			–T	–	9.53 × 7.53
		127	–D	–	12.70 × 9.55
		190	–D	–	19.05 × 15.90
		254	–D	–	25.40 × 22.25
Cable type				–NA	No memory (standard : PTFE coating 5 m)

Converter (SFC010C)

SFC010C	–□	Description
Analog output	–0	4–20 mA
	–1	0–20 mA
	–2	1–5 V
	–3	0–5 V

*2 Contact us if you use a tube of an unlisted size.

*Specification is subject to change without notice.

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