Clamp-on ultrasonic flowmeter

GST/SFC011GS is a clamp-on ultrasonic flowmeter for small diameter piping. There is no need for additional piping work because flow rate can be measured just by sandwiching the existing tube. The piping is virtually kept clean. Most suitable for processes requiring cleanliness such as semiconductor manufacturing equipment, etc.

FEATURES & ADVANTAGES

- **Clamp-on,** Flow rate can be measured just by sandwiching the existing tube. Essentially clean because it does not contact the piping.
- **Energy saving and space saving,** simultaneous measurement of up to 6 lines with one SFC011GS Multiple units can be connected to each other (No need for crossover wiring).
- **High-speed operation,** 30 ms arithmetic processing.
- **Zero adjustment,** by performing zero adjustment before measurement, it can be started under the optimum conditions for the fluid to be measured.
- **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).
  - Parameter settings and flow rate data acquisition are available via RS-485 communication.
  * RS-485 communication converter (sold separately) is required.
- **Conformity standards**
  - EMC conformity standards:
    EN61326-1:2013
    EN61326-2-3:2013
  - RoHS2 compliance

STANDARD SPECIFICATIONS

Power supply voltage	24 V DC ±10%
Current consumption	Approx. 350 mA
Inrush current	Approx. 800 mA
Display	4 digits (Instantaneous flow rate, status)
Analog output	4 to 20 mA DC (Standard) Load resistance: 500Ω or less
Digital output	NPN Open collector (Normal Open) Load rating : 30 V, 10 mA DC Function Frequency output (1 kHz F.S.) Error output Instantaneous flow rate upper/ lower limit alarm Integrated flow rate output Integrated flow rate upper limit alarm
Communication protocol	RS-485 Half-duplex communication startstop synchronization Modbus Protocol, RTU mode Baud Rate 115.2 kbps Data size 8 bits Parity Even Stop bits 1 bit Address Switch 01 to 32
Ambient temperature	Single unit: 0 to 45°C, Multiple units: 0 to 25°C
Ambient humidity	30 to 80% RH (free from dew condensation)
Installation	DIN rail mounting
Structure	Equivalent to IP20 (indoor use)
Material	Heat resistant ABS resin (white)
Weight	Approx. 250g (including power supply terminals)

FLUID SPECIFICATIONS

Measurement target	Purified water, photoresist, low-K material, thinner, etc. (fluid that does not contain bubbles)
Fluid temperature	Normal temperature (±0.5°C)
Ambient temperature	Normal temperature (±0.5°C)
Fluid pressure	0 to 0.5 MPa

DETECTOR SPECIFICATIONS

Connection	Dedicated cable (standard 5m)
Structure	Equivalent to IP20 (indoor use)
Material	PPS GF (30%)
Weight	Approx. 130g

COMPATIBLE TUBE/FLOW RANGE/ACCURACY

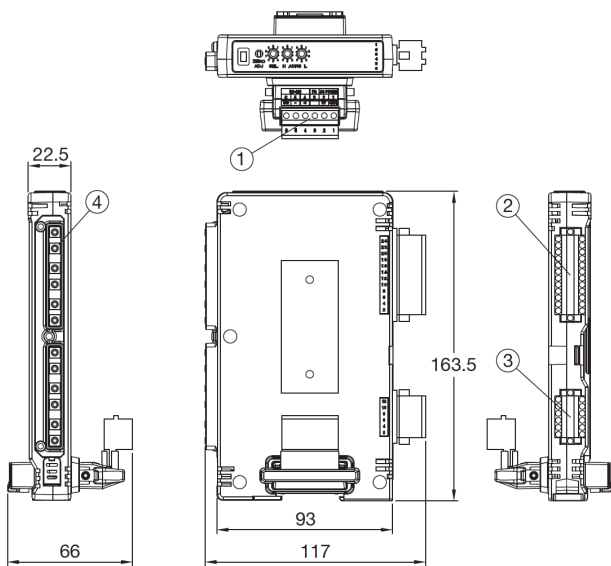| Tube	Flow range [L/min]	Accuracy*
PFA 1/8" (O.D.)	0 to 0.5	±2% of R.D. Flow rate: ±0.016 L/min for 0.8 L/min or less
PFA 1/4" (O.D.)	0 to 2.0	
PFA ø4 (O.D.)	0 to 0.5	
PFA ø5 (O.D.)	0 to 2.0	
PFA ø6 (O.D.)	0 to 2.0	

* Precision for pure water at 20°C after calibration at the time of shipment

OUTLINE DRAWING

Detector (GST)
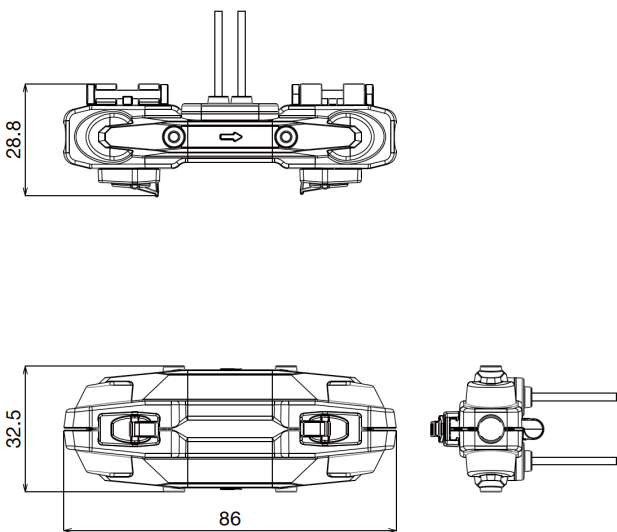
Converter (SFC011GS)

MODEL CODE

Detector model

GST	□□□	–□	□	Remarks
Suitable tube outline	031			1/8"
	040			ø4
	050			ø5
	060			ø6
	063			1/4"
Tube type		-D		Thickness tube
		-T		Thickness tube
Special requirements		(Blank)		N/A
		/Z		With special request*

In case special specifications are specified, write "/Z" at the end of the code and describe the content separately. (Inquire availability of the production for such specifications in advance)

Converter model

SFC011GS	–□	□	Remarks
Suitable tube outline	-0		4–20 mA
	-1		0–20 mA
	-2		0–5 V
	-3		1–5 V
Special requirements		(Blank)	N/A
		/Z	With special request*

CONVERTER TERMINALS

Power supply terminals

Terminal	Contents
1	24 V DC
2	0 V
3	FG
4	RS485+
5	RS485−
6	SG

Digital output terminals

Terminal	Contents
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−

Analog output terminals

Terminal	Contents
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−

Analog output terminals

Terminal		Contents
CH1	IN	CH1 IN connection
	OUT	CH1 OUT connection
CH2	IN	CH2 IN connection
	OUT	CH2 OUT connection
CH3	IN	CH3 IN connection
	OUT	CH3 OUT connection
CH4	IN	CH4 IN connection
	OUT	CH4 OUT connection
CH5	IN	CH5 IN connection
	OUT	CH5 OUT connection
CH6	IN	CH6 IN connection
	OUT	CH6 OUT connection