

### OVERVIEW

**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.

### 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

#### CONVERTER SPECIFICATIONS

|                      |   |
|----------------------|---|
| Power supply voltage | : 24 V DC $\pm$ 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)<br>Load resistance: 500 $\Omega$ or less   |
| Digital output       | : NPN Open collector (Normal Open)<br>Load rating : 30 V, 10 mA DC<br>Function<br>Frequency output (1 kHz F.S.)<br>Error output<br>Instantaneous flow rate upper/lower limit alarm<br>Integrated flow rate output<br>Integrated flow rate upper limit alarm |



|                        |   |
|------------------------|---|
| Communication protocol | : RS-485 Half-duplex communication start-stop synchronization<br>Modbus Protocol, RTU mode<br>Baud Rate 115.2 kbps<br>Data size 8 bits<br>Parity Even<br>Stop bits 1 bit<br>Address Switch 01 to 32 |
| Ambient temperature    | : Single unit: 0 to 45°C,<br>Multiple units: 0 to 25°C  |
| Ambient humidity       | : 30 to 80% RH<br>(free from dew condensation)  |
| Installation           | : DIN rail mounting   |
| Structure              | : Equivalent to IP20 (indoor use)   |
| Material               | : Heat resistant ABS resin (white)  |
| Weight                 | : Approx. 250g<br>(including power supply terminals)  |

### DETECTOR SPECIFICATIONS

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

### FLUID SPECIFICATION

|                     |   |
|---------------------|---|
| Measurement target  | : Purified water, photoresist, low-K material, thinner, etc.<br>(fluid that does not contain bubbles) |
| Fluid temperature   | : Normal temperature ( $\pm$ 0.5°C)   |
| Ambient temperature | : Normal temperature ( $\pm$ 0.5°C)   |
| Fluid pressure      | : 0 to 0.5 MPa  |

### COMPATIBLE TUBE/ FLOW RANGE/ ACCURACY

| Tube                | Flow range [L/min] | Accuracy *1  |
|---------------------|--------------------|--|
| PFA 1/8" (O.D.)     | 0 to 0.5           | $\pm$ 2% of R.D.<br>Flow rate: $\pm$ 0.016 L/min for 0.8 L/min or less |
| PFA 1/4" (O.D.)     | 0 to 2.0           |  |
| PFA $\phi$ 4 (O.D.) | 0 to 0.5           |  |
| PFA $\phi$ 5 (O.D.) | 0 to 2.0           |  |
| PFA $\phi$ 6 (O.D.) | 0 to 2.0           |  |

\*1 Precision for pure water at 20°C after calibration at the time of shipment

## 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      |   | Thinness tube           |
| Special requirements  |     | (Blank) |   | N/A                     |
|                       |     | /Z      |   | With special request *1 |

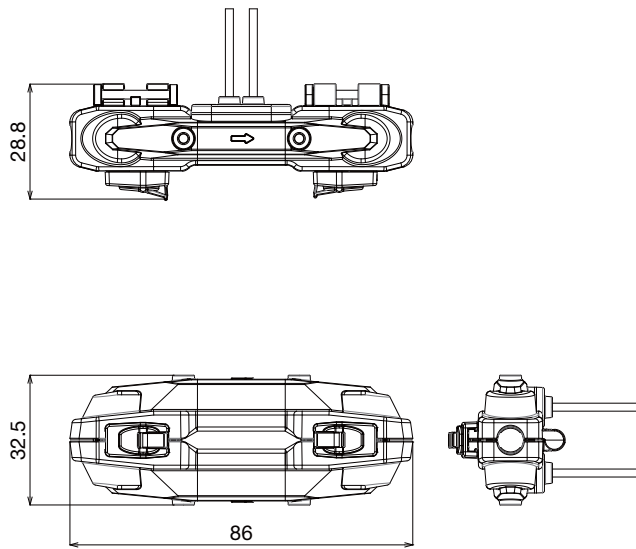
\*1: In case special specifications are specified, write "/Z" at the end of the code and describe the content separately.  
(Inquire availability of the production for such specifications in advance)

Converter model

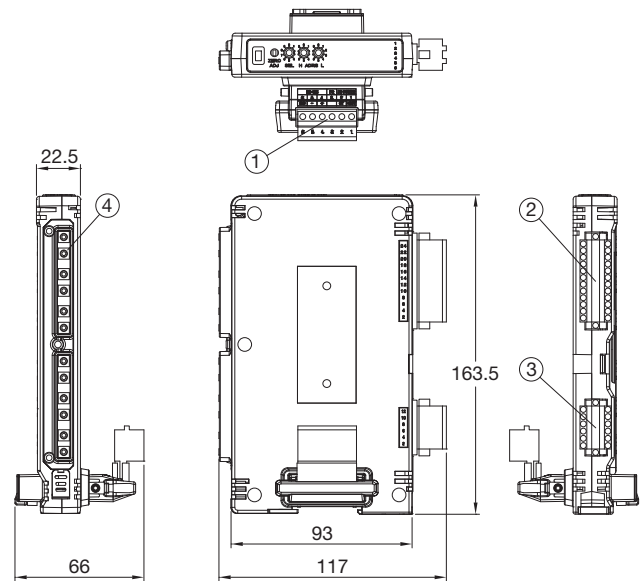
| SFC011GS             | -□ | □       | Remarks                 |
|----------------------|----|---------|-------------------------|
| Analog output        | -0 |         | 4-20 mA                 |
|                      | -1 |         | 0-20 mA                 |
|                      | -2 |         | 0-5 V                   |
|                      | -3 |         | 1-5 V                   |
| Special requirements |    | (Blank) | N/A                     |
|                      |    | /Z      | With special request *1 |

## OUTLINE DRAWING

Detector (GST)



Converter (SFC011GS)



## CONVERTER TERMINALS

① Power supply terminals

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

② 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- |

③ 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- |

④ Detector connection 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 |

\* 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