GENERAL SPECIFICATIONS

TOKICO GS-F1300E

PULSE SENSOR CCG FLOWMETER

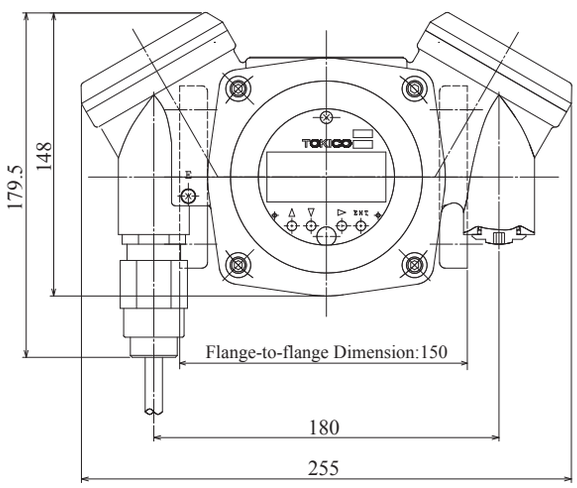
Overview

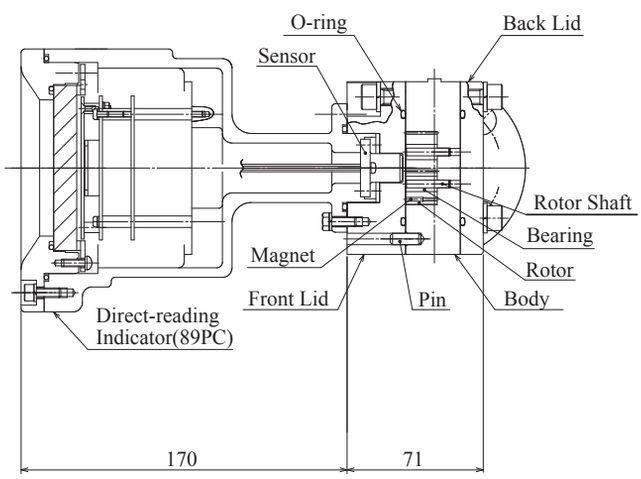
The pulse sensor CCG flowmeter is a positive displacement flowmeter to directly measure the flow with two oval shaped gear rotors. It is best suitable to measure very small flow rate of various fluids such as catalyst, additive, or perfume. Because of stainless steel as standard material, it has high corrosion resistance against special fluids.

Standard Specification

Applicable Fluid	Water, Chemical Liquid, Food, Pharmaceutical Substance, Petroleum, etc.
Accuracy	±0.5%RD
Flow Range	2~300L/h
Fluid Viscosity	5mPa·s or below
Fluid Temperature	-10~80℃
Max.Working Pressure	1.96MPa
Connection Size	15mm
Material	Body：SCS14　Rotor：SUS316 Rotor Shaft：SUS316 Hard Chrome Coating Bearing : Carbon

External Dimension





Approx. weight 8 kg

Flow Range ： Accuracy ±0.5%RD

(L/h)

Capacity Model	Applicable Fluid / Fluid Temperature / Use Condition	Water	Petroleum, Ordinary Chemical Liquids		
		Approx. 1mPa·s	0.3~0.8mPa·s	0.8~2mPa·s	2~5mPa·s
23	Continuous	10~200 ※4~200	20~200 ※8~200	10~200 ※4~200	7~200 ※2~200
	Intermittent	10~300 ※4~300	20~300 ※8~300	10~300 ※4~300	7~300 ※2~300

Note) 1. Continuous flow shows the operation for 8-24 hours a day. Intermittent shows for 8 hours or less. Maximum shows a instantaneuos maximum flow.

2. Select the range of the usual flow to become less than 70~80% of the maximum flow.

3. Linearization correction function of intelligent counting unit is operated for flow rate marked "※".

4. Please contact us if you use corrosive fluid or anyother fluid which is not mentioned above.

Standard Specification of the Counting Portion, Type: 89PC

Disolay	Display	LCD Display
	Totalizing Counter	8 digits, Select "Correction"/"Non-correction" (Note: Correction means in case of temperature correcting function is equipped) Unit: L, ㎥ , KL
	Reset Counter	
	Momentary Flow Rate	Maximum 7 digits, Unit: /min, or /h
	Temperature Display	Maximum 5 digits (If temperature input is required)
	Mode	Indicates "Display Mode" or "Test Mode"
	Alarm	Indicates "Number of times that Alarm occurred" and "Lapse of time"
	Display Change	Changeable by Magnet
Function	* Linearization	Approximation Correction of Line Graph in the 4 Sections (5 Points) (Available up to 10 Sections by Additional Option)
	* Temperature Correction	Correction Range: - 50 to 150℃ Temperature range span of temperature resistor can be set. Petroleum in JIS: K 2249 Or Correction by Using General Secondary Formula
	Coefficient Correction	Flow meter constant is set between 0.0001 and 1.9999
	Lapse of Time after Abnormality Occurred	Laps of time is measured from the occurrence of abnormality
	Self-pulse Generation	For the use in loop check or correction calculation check
	Abnormality Detection	Upper or Lower Limit in the Flow Rate. Or Upper or Lower Limit in Temperature etc.
Accuracy	*Accuracy in Linearize Calculation	± 0.005 % or less (at Measuring Point)
	Temperature Correction Calculation Accuracy	± 0.075 % or less
	Analog Accuracy	± 0.5 % FS or less
Input	Pulse Input	Pulse Sensor CCG Flow Meter (MR sensor) Maximum Input Frequency: 500 Hz
	Temperature Input	Temperature Resistor (Regulated Current: Part with 2 mA)

Pulse output	Output Signal	To be selected from open drain (FET) output, voltage pulsation, or current pulsation Please refer to the Table - 1
	Output Contents	Correction/no-correction required pulse Select alarm output (Note: Correction means in case of temperature correcting function is equipped)
	Output Capacity	30V, 0.1A
	Pulse Width	To be selected from 0.5 ms, 10 ms, or 100 ms
	Transmission Distance	1 km or less (When core wire cable is 1.25mm²) 2 km or less (When core wire cable is 2 mm²)
Analogue output	Output Signal	4 to 20 mA (± 0.5 % FS)Please refer to the Table - 1
	Output Contents	Correction/No-correction Current Pulse Select Correction Required /No-correction Required for Momentary Flow Rate (Note: Correction means the case that temperature correcting function is equipped)
	Response Time	0.5 to 60 s (Set with interval of 0.5 s)
	Transmission Distance	1 km or less (When core wire cable is 1.25 mm²) 2 km or less (When core wire cable is 2 mm²)
Communication		Smart Communication
Power Source	"Pulse Sensor CCG Flow Meter"	DC 12 to 24V (It is different by the output specification. Please refer Table - 1 for details)
Electric Power Consumption		28mA or less (Rush current: 0.8A)
Backup Function		Corrected/Non-corrected Totalized Value
Parameter Setting		To be set by the push button operation on the display board or by the communication
Waterproof Structure		I P66
Explosion Proof Structure		Pressure Resistant and Explosion Proof Structure (Exdll BT4)
Ambient Temperature		-10 to 60℃ (Storage Temperature Range: -20 to 80℃)
Ambient Humidity		5 to 90 % in RH

Note) 1. * marked item is option.
2. Output is capable up to 2 points. For output-capable combination, please refer to the Table - 1
3. If it is used as the explosion proof structure, please always use the coupling with pressure proof packing being attached. In the case that ambient temperature is 45 ℃ or more, please use the cable wire having heat-resistance of 90 ℃ or more.

Cable Wiring Method

1. In order to prevent noise mixing, the signal wire shall be placed by securely avoiding high voltage wiring, or high voltage power source wiring.

2. Please place the wiring away from power wiring as much as possible.

Table - 1
Power Source Voltage: DC 12V, DC 20V to 24V

Output ① (Terminal at Left Side)					Output ② (Terminal at Right Side)				
Output signal	Signal Cable	Supplied Power	Output	Communication	Open Drain	Voltage Pulse	Current Pulse (With Temp. Correction)	Current Pulse (Without Temp. Correction)	Analog
					2 Wire Type	3 Wire Type	2 Wire Type	2 Wire Type	2 Wire Type
					—	DC12V or DC 20V to 24V	DC12V DC20V DC24V	DC12V DC20V DC24V	—
Open Drain	3 Wire Type	—	○	○ (*1)	○	○ (*3)	○ (*3)	○ (*3)	×
Open Drain	4 Wire Type	—	○	○	○	○ (*3)	○ (*3)	○ (*3)	×
Voltage Pulse	3 Wire Type	DC12V or DC 20V to 24V	○	○ (*1)	○	○ (*3)	○ (*3)	○ (*3)	×
Current Pulse (With Temp. Correction)	2 Wire Type	DC12V	×	×	○	○ (*3)	○ (*3)	○ (*3)	×
		DC20V	○(*4)	○					
		DC24V	○(*4)	○					
Current Pulse (Without Temp. Correction)	2 Wire Type	DC12V	○(*4)	○	○	○ (*3)	○ (*3)	○ (*3)	×
		DC20V	○(*4)	○					
		DC24V	○(*4)	○					
Analog	2 Wire Type	—	○ (*2)	○ (*2)	○	○ (*3)	○ (*3)	○ (*3)	×
None (For power supply only)	2 Wire Type	—	×	○	○	○ (*3)	○ (*3)	○ (*3)	×

(*1) It is necessary to add load resistor in Positive (+) side.
(*2) Use in DC 12V is not available.
(*3) Additional power is required.
(*4) Pulse width of the current pulse is 0.5ms only. (In case of output ②, 10ms, or 100ms is available)

Totalizing Unit

Capacity Model	Conn.Size (mm)	Max. Flow Rate (L/h)	Totalizing Counter (8 digits L)	Reset Counter (5 digits L)	Momentary Flow Rate (7 digits L)	Out Pulse Unit (L/P)
23	15	300	0.001	0.001	0.001	0.001
			0.01	0.01	0.01	0.01
			0.1	0.1	0.1	0.1

Note) 1. Select either of momentary flow rate unit in xx/min. or xx/h.
2. Select either of pulse output: Open drain, (FET), Voltage pulse, or Current pulse

Basic Model

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Contents		
Model Code			Conn.Size (mm)		Capacity		Pressure	Material: Exterior Portion	Material: Inside Mechanism	Totalizing Unit									
F	G	Y															Pulse Sensor CCG Flowmeter		
			B	4													1/2 B (15mm)		
																	Intermittent Max. Flow Rate of Light Oil		
					2	3											300L/h		
																	Max. Working Press.	Applicable Flange Rating: J I S	Applicable Flange Rating: ANSI, JPI
							B										0.98MPa	10K	150
							D										1.96MPa	20K	150,300
																	Body	Rotor	Bearing
								U	T								SCS14	SUS316	Carbon
										—							Always use "- (hyphen)"		
																	Type	Output Signal	Nomal/Reverse Flow Detection
											8	9	P	C	—	X	Intelligent Type	According to the Table - 1	None

Accessories

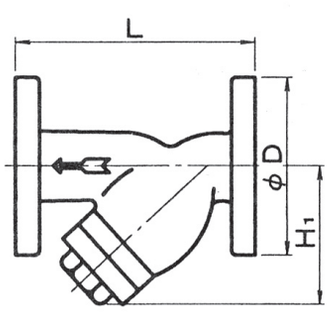
〔Strainer〕

When the pulse sensor type CCG flowmeter is in use, be sure to install the strainer on the upstream side of the flowmeter to prevent entry of dust, etc. into the flowmeter.

Standard Specification

Structure		Y Type
Applicable Fluids		Water, Chemical Solutions, Food, Pharmaceutical Substance, Petroleum,etc.
Connection Size		15mm
Material	Body	SCS14 or SUS316
	Screen	SUS316
Screen Mesh		200 mesh

Dimension Drawing



Dimension Table

Type Code	Flange Rating	Dimensions(mm) φD	L	H1	Content	Approx.Weight
FSYB426BUV	JIS 10K	95	125	65	0.1L	2kg
	JPI, ANSI150	89				
FSYB426DUV	JIS 20K	95	160	100		
	JPI, ANSI300					

⚠ Caution for Flowmeter Piping Installation

● As this flow meter is precisely adjusted for the infinitesimal flow rate measurement, therefore, please handle them by paying your specially careful attention during the handling from open package, piping installation, and up to the test run.

● Please pay your attention not to enter the dusts in the measuring room.

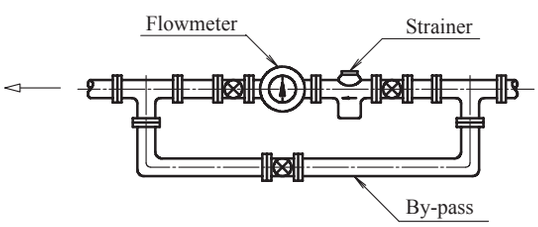
● Please sufficiently carry out the flushing in the piping.

● Please avoid from idling rotation of the rotor with the air etc. Or excessively high speed rotation by flowing momentary excessive flow.

● This flow meter does not have a subtracting function.If the usage of fluid that has pulsation (Fluid goes and back in the piping by the pressure influence) or reverse flow, all of the flow are added regardless of flowing direction, and there may be the case that the displayed totalized value will not be met.

● Be sure to operate the flowmeter within the specification stamped on the name plate.

Horizontal Arrangement
(Flow Direction Right → Left)

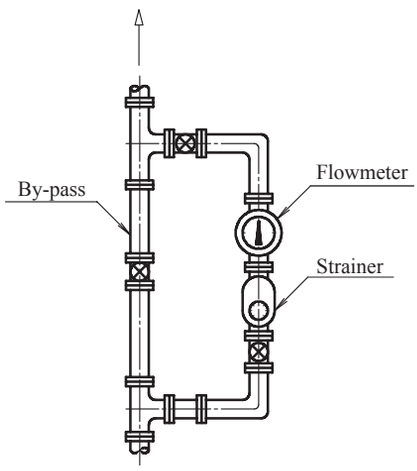


● As shown below, install a strainer at the up-stream of the flowmeter and provide a by-pass for the convenience of flowmeter disassembly and maintenance.

● Install the flowmeter so as to level its rotor shaft pose regardless of the mode(horizontal or vertical) of its associated pipes.

● The flowmeter should be installed on the by-pass side since the dirt in the outlet piping flows back when the flow direction is from bottom to top.

Vertical Arrangement
(Flow Direction Lower → Upper)



Ordering Instructions

No.	Item	Contents
1	Applications	Production Control, Dealings, Receipt and Shipment etc.
2	Applicable Fluid Name	Name, Compositions, Existence of Admixture and Corrosion
3	Accuracy	± %
4	Flow Rate	Maximum, Normal, Minimum (Time of Use For Each Day) (L/h)
5	Operating Temperature	Maximum, Normal, Minimum (℃)
6	Operating Pressure	Maximum, Normal, Minimum (MPa)
7	Viscosity and Specific Gravity	Viscosity (at ℃), Specific Gravity (at ℃)
8	Connection Standard	Connection Size and Flange Standard, etc.
9	Flow Direction	Horizontal or Vertical piping
10	Applied Regulations	Name of Regulation and Standards
11	Attached Equipment	Necessity of Strainer and Valve, etc.
12	Power Supply	

● Contact

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