Fuji Electric

Innovating Energy Technology

Ultrasonic Flowmeter S-Flow

Easy Installation, Space Savings

Flow rate is “visualized” using our long-cultivated ultrasonic technologies.
Contributes to energy savings and production process solutions.

- **Easy Clamp-on type by simply tightening 4 screws.
No need for pipe modification.**
- **Integrated detector and flow transmitter for space savings.**
- **Built-in temperature sensor enables simultaneous measurement of flow rate and temperature (Optional).**

Compliant with CE

Easy installation, space savings.
Easily deployable ultrasonic flowmeter S-Flow

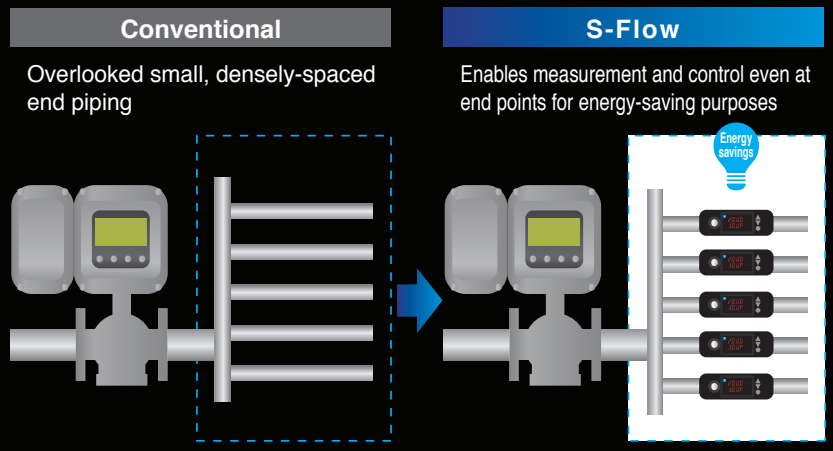
Carbon neutrality on a global scale has been attracting attention in recent years.

Companies are promoting their activities to achieve high efficiency and energy savings.

Against this backdrop, more demand is growing to control the flow rate of fluid at the end points of the production lines in the factories.

Fuji Electric has developed the easy-deployable Integral Flowmeter, named “S-FLOW” to support such demand.

It has realized easy installation, space savings and affordable cost.

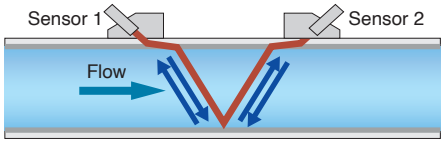


Pipe diameter:
8A/10A

Measuring principle

Transit-time measuring method by Fuji proprietary digital signal processing

By using the ultrasonic pulses transmitted diagonally between the upstream and downstream sensors mounted on the outside of the pipe, the flow rate is measured by detecting the time difference obtained by the flow of fluid.



Pipe diameter:
25A/32A

Pipe diameter:
15A/20A

The LED display is composed of inlaid layers. Requires connection to a dedicated cable during use.

Product lineup

Capable of measuring pipes from 8A to 32A.

Type	Pipe diameter
FSZ08	8A, 10A
FSZ15	15A, 20A
FSZ25	25A, 32A

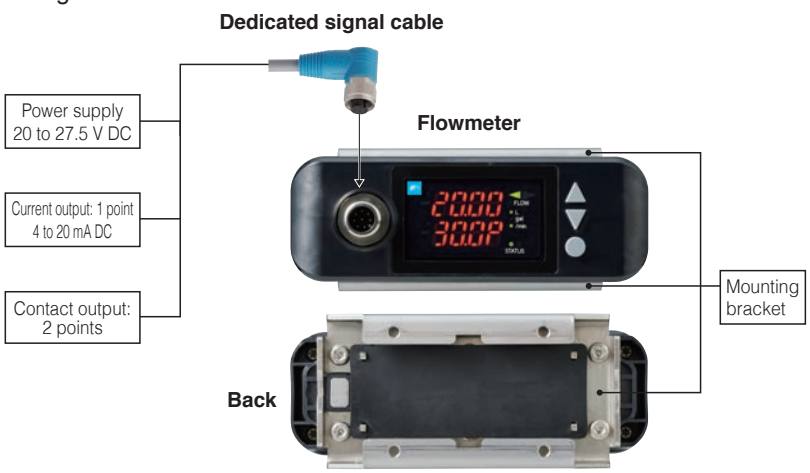
Measurable pipe materials and fluids

Capable of a wide range of pipe materials and fluid types

Pipe materials	Metals (stainless steel, steel, copper), Plastics (PVC, PP, PVDF), etc.
Fluid types	Water, ultrapure water, chemicals, oil, etc.

Equipment configuration

Integrates the detector and flow transmitter to simplify equipment configurations.

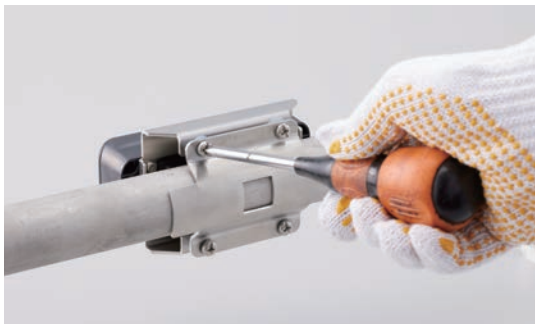


Easy installation

Reduces labor hours and installation costs

- Clamp-on type requires no pipe modification. It can be installed without stopping equipment.
- No need for the sensor-distance adjustment. Anyone can easily install it by simply tightening the screws.

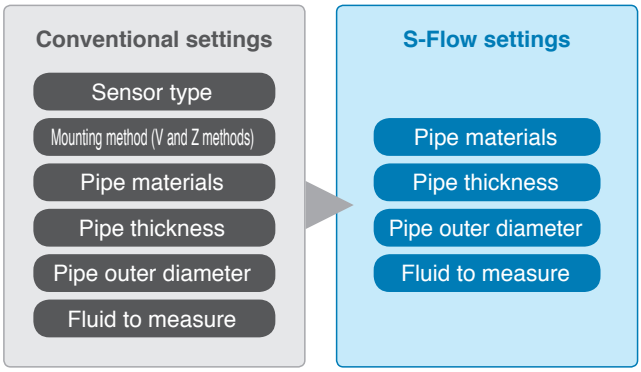
Clamp-on type without pipe modification.



Easy installation using a single screwdriver.

Easy to set up

- Configurable only with three buttons. Simply turn on, configure four settings, and start measuring immediately.



No grease required

- Special rubber is used to keep the pipe in close contact instead of grease.
- No need to store grease for maintenance purposes.

Backside rubber

Easy-to-read LED display of flow rate values

- Easy-to-read, intuitive 2-row LED display. Front function keys allow for easy operation.

Flow rate indication Example 1

Row 1: Instantaneous flow rate value
Row 2: Instantaneous flow rate % value

Flow rate indication Example 2

Row 1: Instantaneous flow rate value
Row 2: Pipe temperature

Space savings

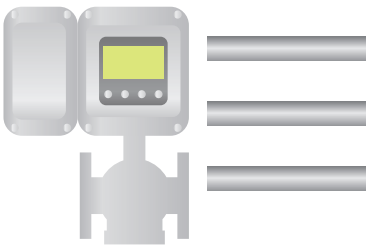
Integral, Compact design

■ Flow transmitter and detector functions are integrated to achieve compact dimensions.
Compared to conventional flow transmitter (type: FLR), the size is reduced by approximately 76%.

Can be installed on densely-spaced piping and inside of equipment

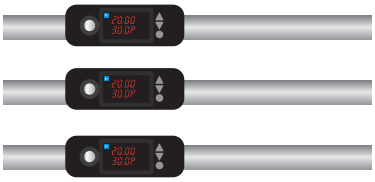
■ Its compact design allows installation in areas where space is limited, such as in densely-spaced piping and inside equipment.

Conventional

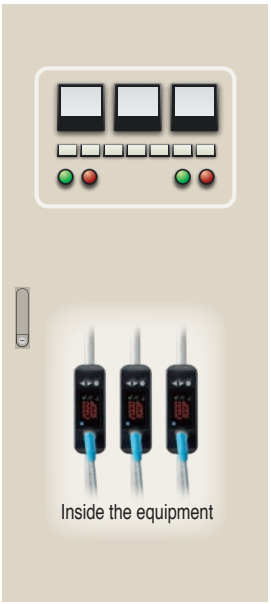


Cannot be mounted on densely-spaced piping due to large size

S-Flow



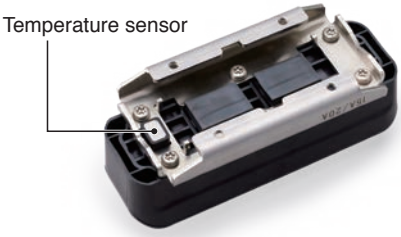
Can be mounted on small, densely-spaced piping



Compact and easy to mount inside equipment

Built-in temperature measurement function (Optional)

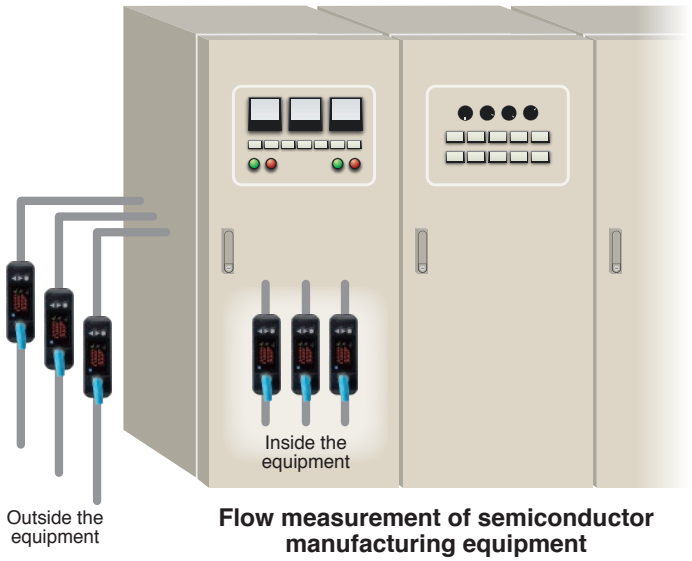
■ A built-in temperature measurement function, enables simultaneous measurement of flow rate and temperature.



Application example

Flow control of semiconductor manufacturing equipment

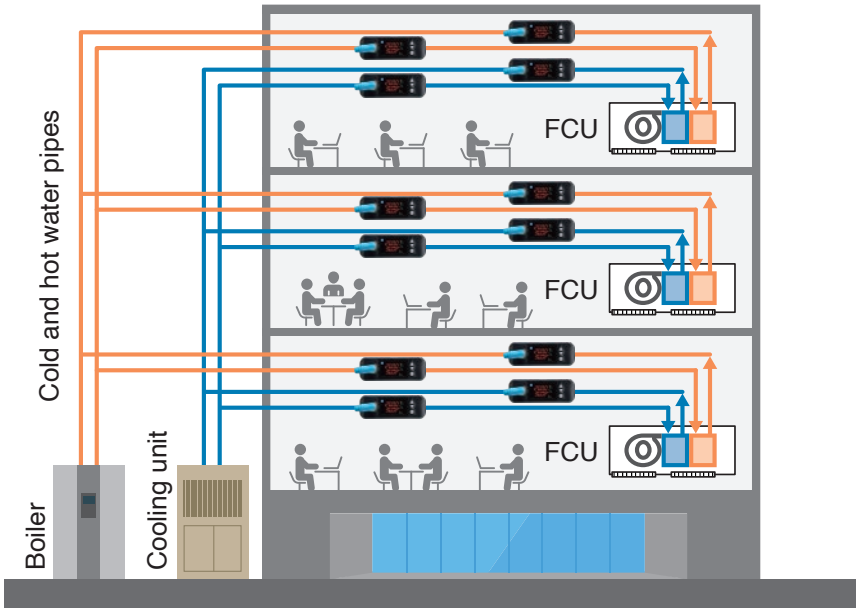
In addition to piping for pure water manufacturing processes, cleaning processes, and equipment cooling, it can also be mounted inside equipment where there is densely-spaced small-diameter piping.
Contributes to flow control in semiconductor manufacturing lines.



Flow measurement of semiconductor manufacturing equipment

Flow monitoring of water for building air conditioning flow usage

It can be installed to cold and hot water piping throughout the entire building. By measuring the flow rate, it facilitates more efficient fan coil unit (FCU) operations. Similarly, it also facilitates efficient operation of air handling units (AHU) for large spaces. The monitoring of flow rates contributes to energy savings.



Flow measurement per fan coil unit (FCU)

Type designation

Flowmeter

1	2	3	4	5	6	7	8	Description	
F	S	Z					1		
			0	8				Diameter	8A
			1	5					15A
			2	5					25A
					Y			Power supply	20 to 27.5 V DC
						Y		Option	None
						T			Pipe temperature measurement
							1	Revision No.	—

Dedicated signal cable

1	2	3	4	5	6	7	8	Description	
F	L	Y					1		
			F					Application	Ultrasonic Flowmeter (FSZ
				0	0	3		Dedicated signal cable length	3m
				0	1	0			10m
							1	Revision No.	—

Specifications

	Type	Pipe diameter
Main unit type	FSZ08	8A, 10A
	FSZ15	15A, 20A
	FSZ25	25A, 32A

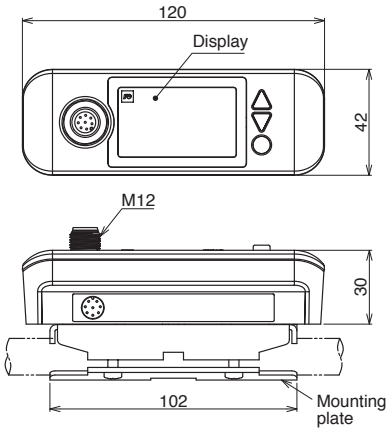
Configuration	Integrated flow transmitter and detector
Mounting method	Clamp-on type
Measurement method	Transit-time measuring method
Fluid to measure	Homogenous fluids where ultrasonic signals can be transmitted
Measurement range	0 to ±5 m/s (Min. 0 to ±0.2 m/s)
Accuracy	Velocity 1 m/s to 5 m/s: ±2% of rate Velocity less than 1 m/s: ±0.02 m/s
Required straight pipe length	Upstream 10D or more; Downstream 5D or more (D: Pipe inner diameter)
Pipe materials	Metals (stainless steel, steel, copper) Plastics (PVC, PP, PVDF)
Piping thickness	1.2 mm to 4.9 mm
Fluid temperature	-15 to +85°C (Can vary depending on ambient temperature)

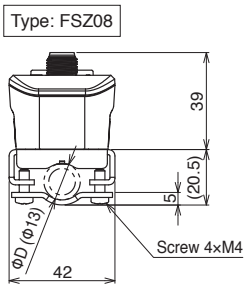
Response time:	0.5 seconds
Output signal	4 to 20 mA DC: 1 point Contact: 2 points
Display	LED 4-digit 2-row display
Degree of protection	IP65/IP67
Ambient temperature	-15 to +60°C
Ambient humidity	95%RH or less
Power supply and power consumption	20 to 27.5 V DC, 2.5 W or less
Mass	FSZ08: 400 g FSZ15: 500 g FSZ25: 600 g
Temperature measurement (Optional)	Pipe surface temperature measurement

External dimensions

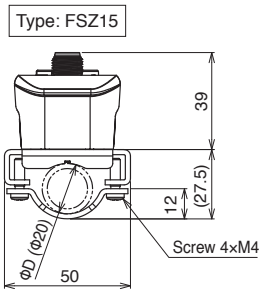
(Unit: mm)

Flowmeter body

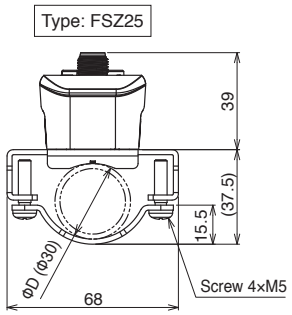




ΦD: Pipe outer diameter (Φ13-Φ18)

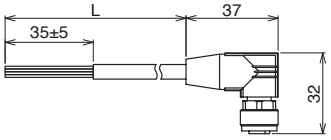


ΦD: Pipe outer diameter (Φ20-Φ28)



ΦD: Pipe outer diameter (Φ30-Φ43)

Dedicated signal cable



Type	FLYF003	FLYF010
L [m]	3±0.15	10±0.2

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