

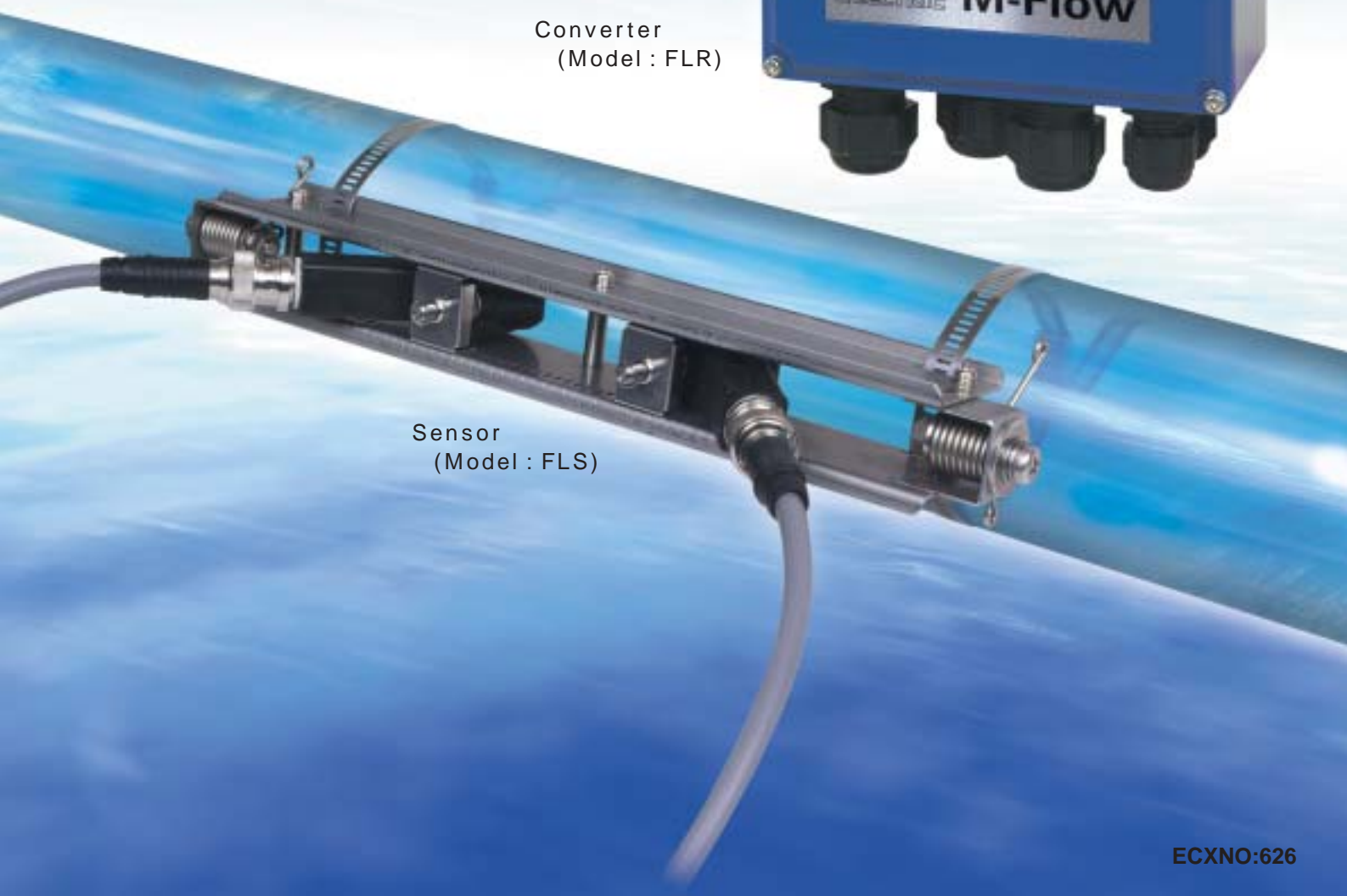
Ultrasonic Flowmeter M-Flow

Small size
140 × 130mm

Converter
(Model : FLR)



Sensor
(Model : FLS)



Affluent experience in Ultrasonic flow measurement

Fuji Electric has over 25 years experience in development and manufacturing of ultrasonic flowmeters.

More than 20,000 units have been installed all over the world.

We are introducing M-flow Ultrasonic Flowmeter, which is middle class model of our ultrasonic flowmeter line up.



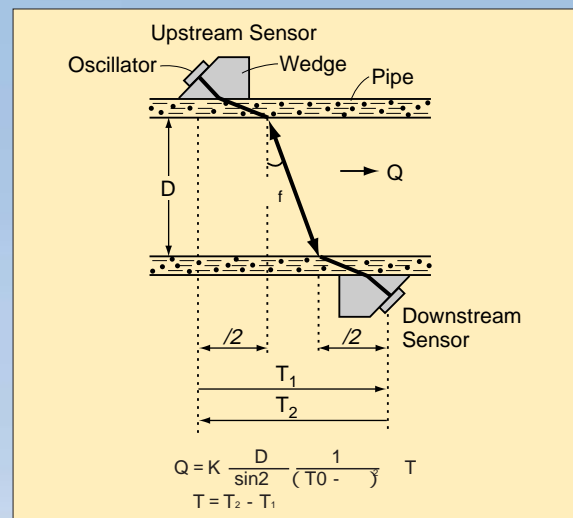
Basic Measuring Principle " TRANSIT-TIME Method "

All Fuji's ultrasonic flowmeters measure flow rate by utilizing the TRANSIT-TIME Method.

Simply, two ultrasonic sensors are mounted on the pipe exterior.

Each transmits an ultrasonic pulse to the opposite sensor. The difference in the transit time of the two waves is used to calculate the flow velocity.

Compared to the other popular principle, " Doppler ", " TRANSIT-TIME " has better performance in accuracy and measurable flow range.



Wide-Range of Applications

Water and Wastewater Treatment

Locate water leaks or determine flow direction in service pipes.

District Heating

Measurement of cooling water and heating water.

Food and Beverage

Use with products for sanitary condition or washing and process water.

Semiconductor Manufacturing

Install on pure water feed lines / pure water manufacturing.

Office and Large Residential Environments

Applicable to either fresh water supplies or heating and cooling water.

Plating and Painting

Applications include process water and petroleum based fluids.

Pumping Efficiency

Leakage Detection



Our technical breakthrough based on years of experience and the adoption of the latest digital technology, enabled Fuji's ultrasonic flowmeters to provide remarkable features;

Small size and light weight

Dimensions : 140 (H) × 130 (W) × 68 (D) mm
Mass : 0.8kg (Converter) , 0.3 / 0.4kg (Detector)

Quick response :

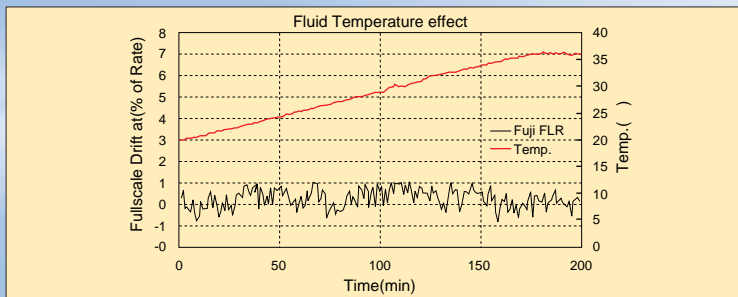
High speed calculation of 0.2 sec applicable for short batch process

Not influenced by fluid's temperature / pressure change

Adoption of " Sound Velocity Measurement system. "

Sound Velocity Measurement System^{PAT.}

- Auto Calculation of unknown sound velocity
 - Auto-Temp./Press. Compensation
- Sound velocity of measured fluid is influenced while pressure and temperature change. " Sound Velocity Measurement System^{PAT.} " realizes temp./press. compensation which is essential for precise flow velocity measurement, by measuring sound velocity of measured fluid at every measuring cycle.



Easy mounting clamp-on sensor

Easy operation by external keypads

Multilingual : English / German / French / Spanish supported

Plastic housing with IP65

Communication function (option) :

RS-485/ RS-232C

Synchronization (option) :

Cross-talk or acoustic interference eliminated.

Middle class
Model
appropriate
for Machine
Mounting

Converter (Model : FLR)



Sensor (Model : FLS)

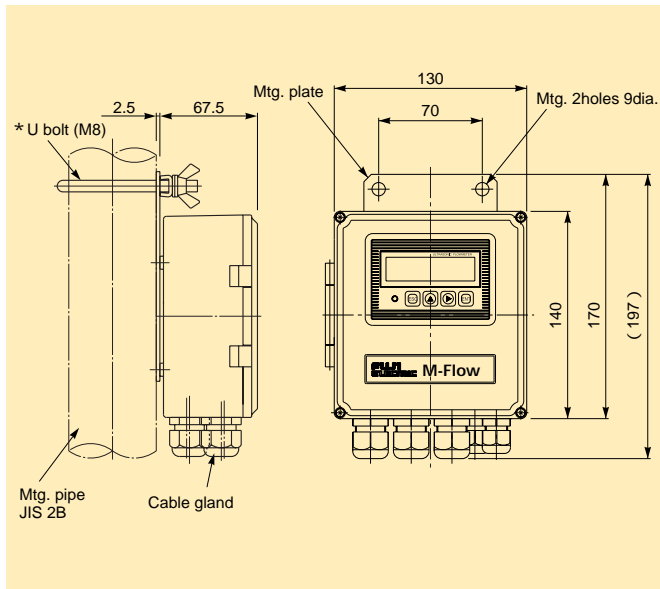


Specification

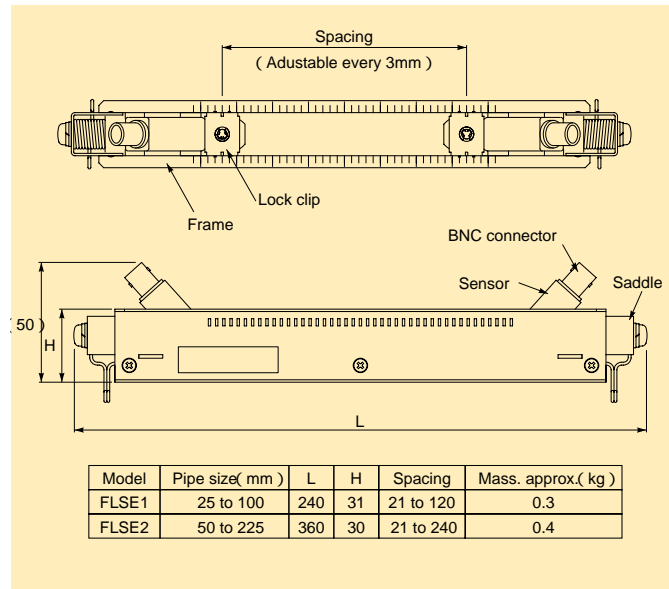
Model	FLR (Converter), FLS (Sensor)															
Type of sensor applicable inside & diameter fluid temperature	Small type sensor : 50 to 225mm (- 20 to + 100) Small diameter pipe : 25 to 100mm (- 20 to + 100)															
Measurement range	Flow rate 0 to $\pm 0.3\text{m/s}$... $\pm 10\text{m/s}$															
Measured fluid	Any liquid through which ultrasonic signal can pass.															
Accuracy	<table border="1"> <tr> <td>Pipe size</td> <td>Flow velocity</td> <td>Accuracy</td> </tr> <tr> <td rowspan="2">25 to 50 or less</td> <td>2m/s to 10m/s</td> <td>$\pm 3\%$ of rate</td> </tr> <tr> <td>0m/s to 2m/s</td> <td>0.06m/s</td> </tr> <tr> <td rowspan="2">50 to 225</td> <td>2m/s to 10m/s</td> <td>$\pm 2\%$ of rate</td> </tr> <tr> <td>0m/s to 2m/s</td> <td>0.04m/s</td> </tr> </table>			Pipe size	Flow velocity	Accuracy	25 to 50 or less	2m/s to 10m/s	$\pm 3\%$ of rate	0m/s to 2m/s	0.06m/s	50 to 225	2m/s to 10m/s	$\pm 2\%$ of rate	0m/s to 2m/s	0.04m/s
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Straight length of pipe shall be 10D up stream, 5D down stream.																
Response	Dead time : 0.2s or less, Time constant : 0.1s															
Display	16digits, 21lines (LCD with backlight)															
Analog output	4 to 20mA DC, 1point															
Integration status output	Open collector : 1point, Relay contact : 1point															
Communication interface	RS-232C or RS-485															
Cable length	30m max.															
Ambient temperature	Converter : - 20 to + 50 Sensor : - 20 to + 60 Sensor cable : - 20 to + 100															
Converter size/mass	140x 130 x 68mm/0.8kg															
Display function	<ul style="list-style-type: none"> Actual scale display of instantaneous flow rate and flow velocity Actual scale display of normal/reverse integrated volume Self-diagnosis by 2-color LED 															
Display language	English, French, German or Spanish selectable															
Automatic range selection	Automatic 2-range selection															
Temp./press. compensation	Sound Velocity Measurement System															
Power source	100 to 120V AC or 200 to 240V AC 50/60Hz or 20 to 30V DC															
Enclosure protection	IP65 for both converter and sensor (When water-proof BNC is applied)															

Outline Diagram (Unit : mm)

Converter (Model : FLR)



Sensor (Model : FLS)



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