CAT.No.CBD140E-1

Gas

OVAL

THERMISTOR TYPE VORTEX FLOWMETER

OVAL VORTEX FLOWMETER

Transmitter | Standard Type | Insertion Type

- A thermistor element which has great low flowrate sensitivity uses as the vortex detection element
- Simple structure with high durability
- Easy maintenance
- The transmitter can install in an easily manageable location
- Energy-saving design

It is a type of vortex flowmeter that uses the regularity and periodicity of the Karman vortex street. The thermistor sensor detects flow velocity changes caused by the vortex generation to measure flowrate.

A thermistor element which has great low flowrate sensitivity uses as the vortex detection element

The thermistor type has better low flowrate sensitivity than piezoelectric element type and is not affected by vibration in principle.

Simple structure with high durability

Since there are no mechanical moving parts or wear parts, it has sufficient durability for a long term continuous use and the accuracy does not change.

Easy maintenance

The standard type and insertion type (hot-tap type) have a sensor-replaceable structure that allows maintenance and inspection work to be performed without stopping the flow of the measurement fluid.

The transmitter can install in an easily manageable location

Since the transmitter separates from the main body, it can install freely in an easy-to-manage location and is not affected by plumbing conditions.

Energy-saving design

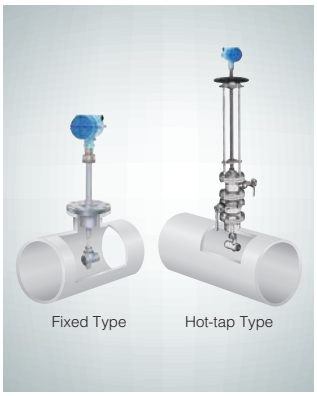
Energy-saving flowmeter with low pressure loss

STANDARD TYPE

- Measuring the actual flowrate, it is not affected by changes in temperature, pressure, and physical property of the fluid.
- Accumulating the flowrate is easy because pulse output is proportional to the flowrate.

STANDARD TYPE DOUBLE SENSOR

- Double instrumentation improves maintainability and safety.

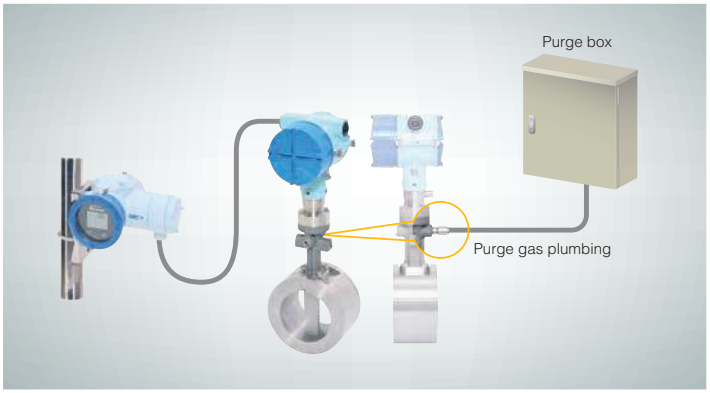


INSERTION TYPE

- Large diameter is supported.
- Less expensive than the standard type with the same diameter.

INSERTION TYPE FOR EXHAUST GAS MEASUREMENT

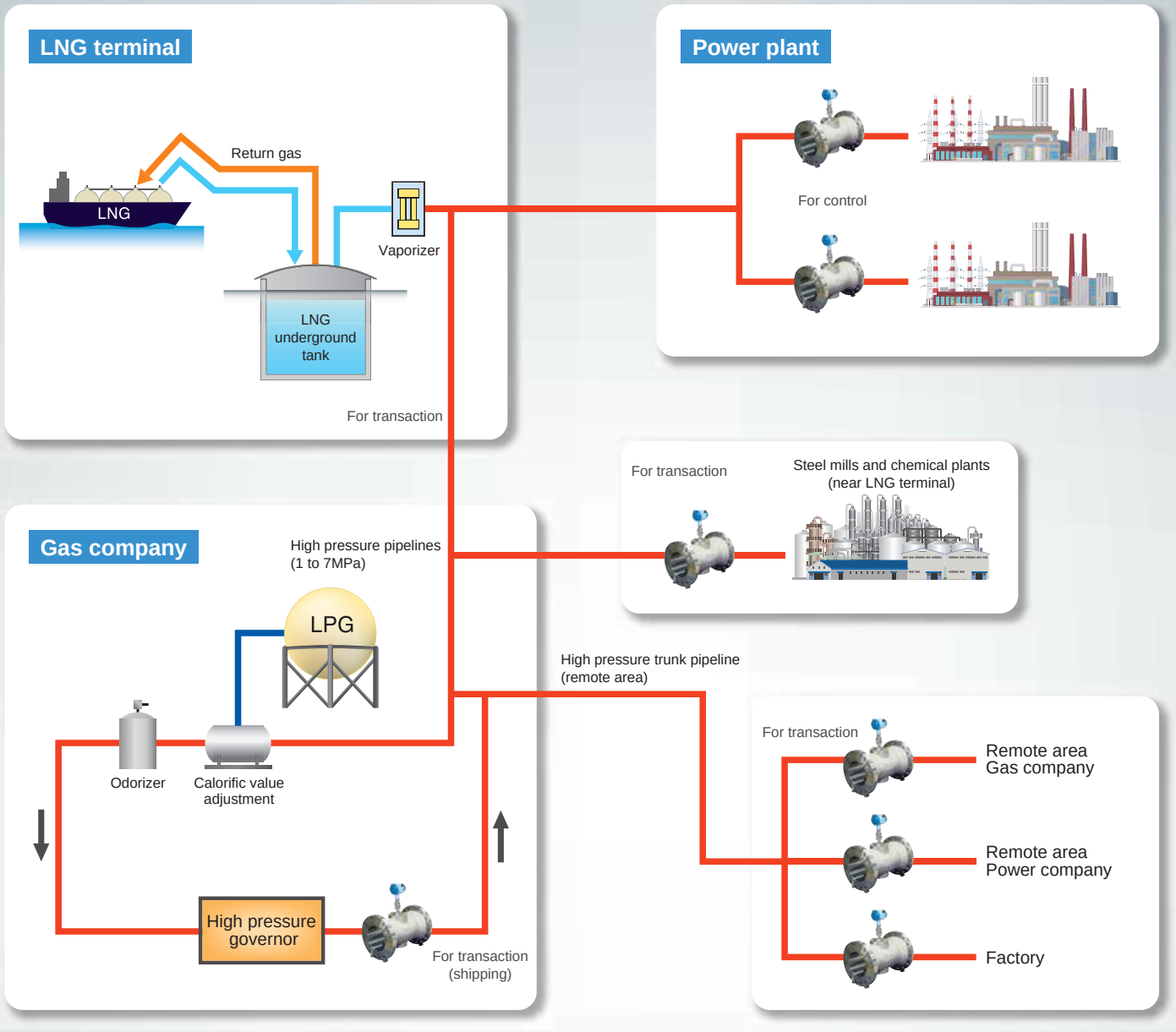
- Large diameter is supported.
- The sensor gas purge type is capable of measuring high temperature gas (up to 350°C).



GAS PURGE TYPE

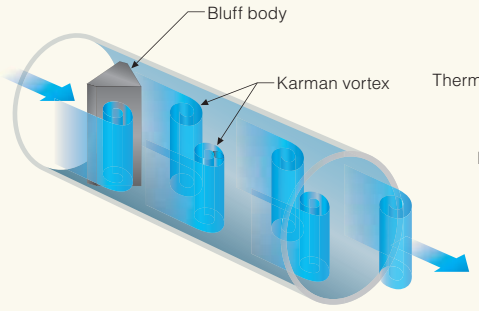
- This type replaces the flow velocity changes caused by the vortex generation in the line flow with the flow velocity changes of purge gas (dry clean gas) which is introduced from the outside.
  The thermistor sensor is constantly in contact with clean and room temperature purge gas, so it is capable of measuring gas which was difficult to measure so far such as gas containing dust and mist also, high and low temperature gas.

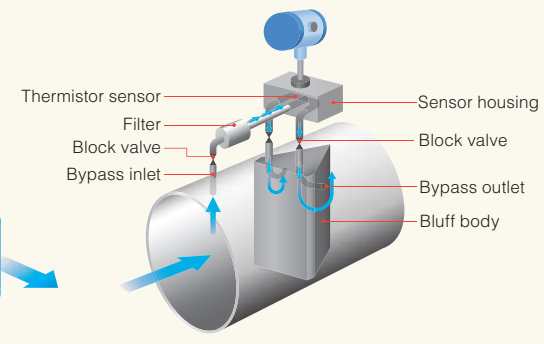
■ APPLICATION EXAMPLES

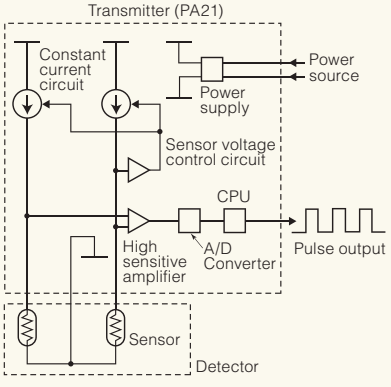


■ MEASUREMENT PRINCIPLE

When a fluid flows in a pipe, a Karman vortex proportional to the flow velocity generates downstream of a bluff body which placed at right angles to the fluid flow. The flow velocity changes caused by the vortex generation is extracted from the thermistor sensor in the sensor housing as temperature change → resistance change → flow velocity proportional pulse to measure the flowrate.





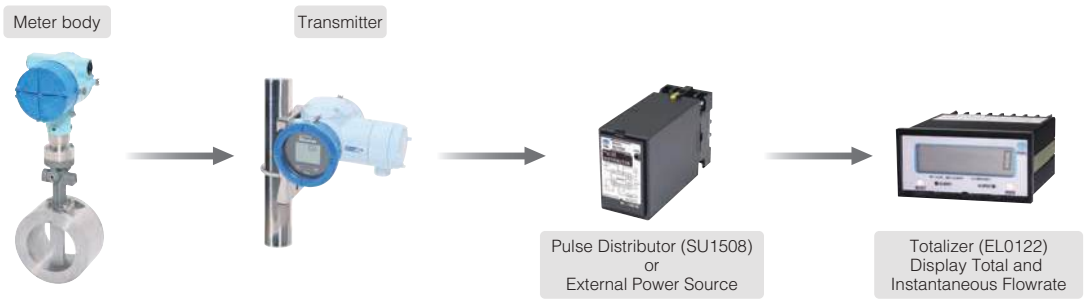


■GENERAL SPECIFICATIONS (For details, please refer to the General Specification sheet of each model.)

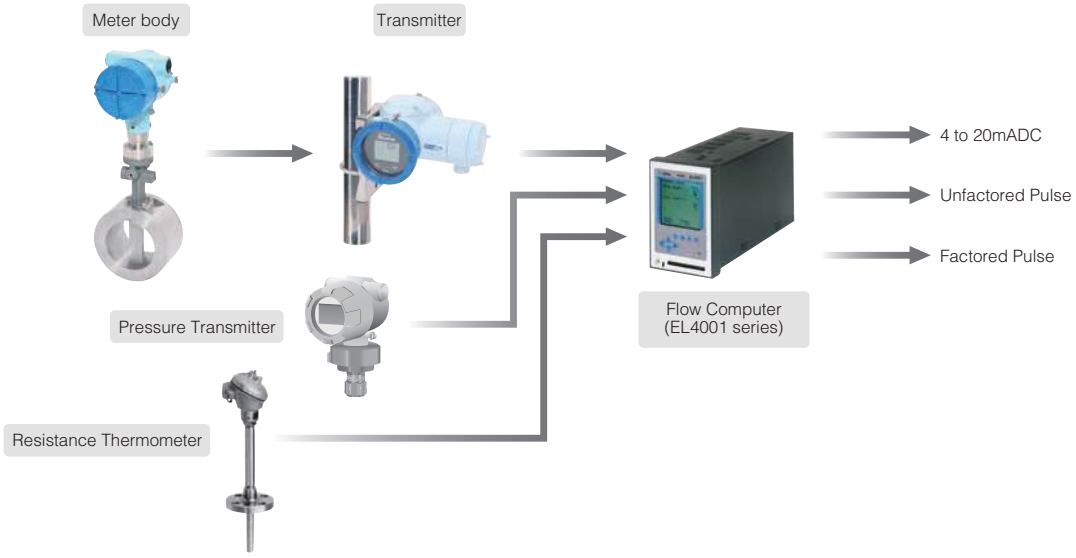
Item		Description				
		Standard Type	Standard Type Double sensor	Gas Purge Type	Insertion Type	Insertion Type for Exhaust Gas Measurement
Nominal size	Wafer type	20 to 150mm	40 to 150mm	50 to 150mm	—	
	Flange type	200 to 500mm			—	
Applicable pipeline diameter		—			200 to 2000mm	
Installation		—			Fixed Type Hot-tap Type	Fixed Type
Operating temperature range		−10 to +120°C (Option: −20 to +130°C)			−10 to +80°C	−10 to +80°C (Gas-purge type with cooling fins −10 to +350°C)
Maximum operating pressure		Depends on flange standard		Less than 1MPa		
Accuracy		Within ±1% of reading or ±1% of full scale			Within ±2% of full scale	
Applicable fluid		Air, City gas, Natural gas		Air, Nitrogen	Air, Nitrogen, City gas	Air, Various exhaust gases
Power supply		DC power supply				
Output		Pulse, Status				
Reproducibility		Within ±0.2%				
Physical orientation		Horizontal or vertical			Horizontal	No restriction regarding meter accuracy. Typically horizontal.
Purge gas		—	—	For instrumentation air, nitrogen, or the same gas as the measurement fluid	—	—

■CONNECTION TO RECEIVING INSTRUMENTS (EXAMPLE)

● Line temperature and pressure are considered approximately constant and correction coefficient can be multiplied as a fixed constant:



● Flowrate is corrected automatically by using the line temperature and pressure, and display (or output) total and instantaneous flowrate:



The specification as of November, 2021 is stated in this catalog. Specifications and design are subject to change without notice.

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