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Lab/Testing · Environment

Gas flow rate control

Flame control for waste gas abatement systems

Excellent control achieves stable flame even from low-pressure fuel gas

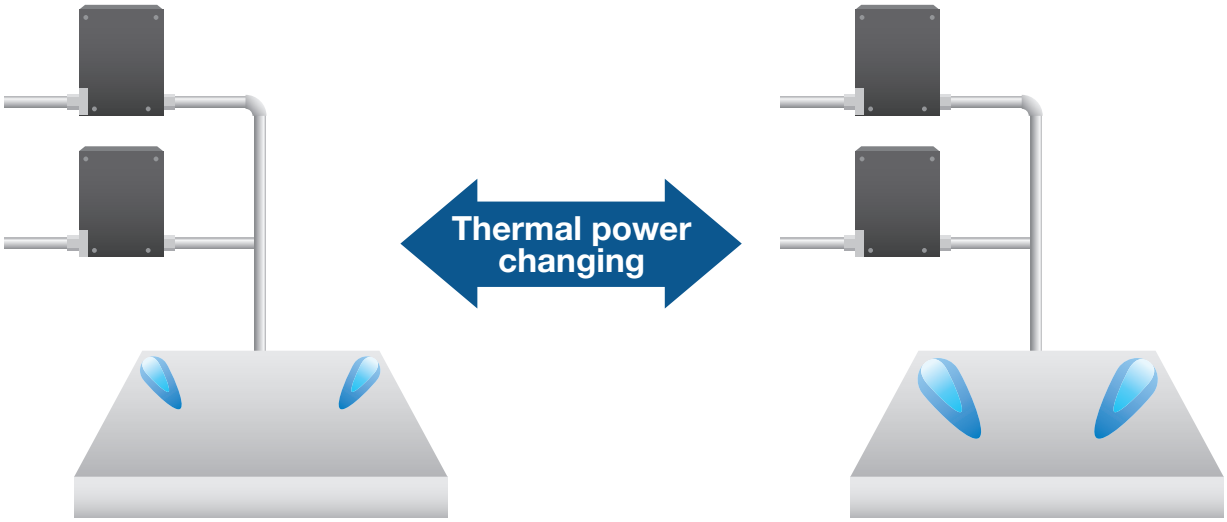
Product	Process sensor Digital Mass Flow Controller
Model No.	F4Q____
Process/ equipment	Waste gas abatement systems

Current Situation

- The fuel gas is supplied at low pressure.
- When the system is not processing waste gas, thermal power is reduced to save fuel.
- The thermal power is changed based on the type or flow rate of waste gas.

Current Problems

- Conventional mass flow controllers with large pressure loss cannot control low-pressure fuel gas.
- The response of conventional mass flow controllers is slow particularly in the low flow rate range, so when the thermal power is reduced, the flame is unstable.
- There is a risk of misfire while changing the thermal power.



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Solutions

Solution 1

A controller with low pressure loss can control low-pressure fuel gas.

Model F4Q has a straight flow path without a capillary, which would cause high pressure loss, so it can control low-pressure fuel gas.

Solution 2

Fast response across the entire flow rate range

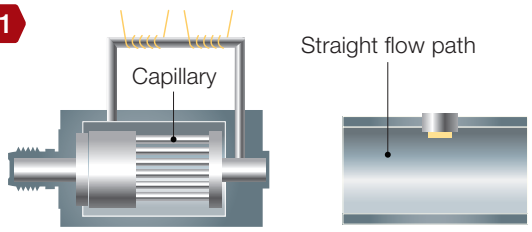
The response is also fast when the flame is low and the set flow rate is reduced. Even low flames are stable.

Solution 3

The set point ramp function reduces the risk of misfire when the thermal power is changed.

With the set point ramp function, the rate of change of the flow rate can be specified. This function makes it possible to increase the gas ratio only when the flow rate is changed in order to reduce the risk of misfires.

Solution 1

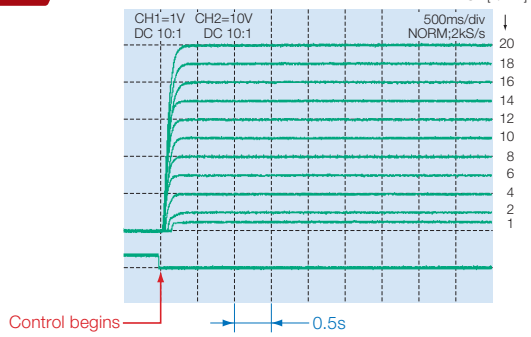


Conventional mass flow controller structure

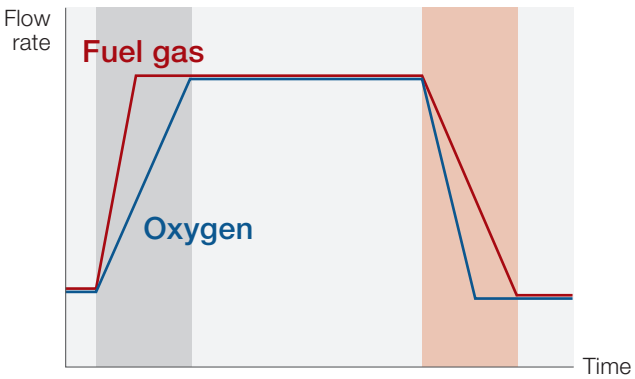
Structure of the model F4Q

Solution 2

Control characteristic graph



Solution 3



Related products

Network Instrumentation Module
Smart Device Gateway* Model NX-SVG

Program-less communication can markedly reduce development time.

* A communication gateway that allows the interchange of information between various kinds of control device without programming, enabling smarter development work.

Dynamic self-checking burner controller
Model AUR455

This burner controller conforms to JIS standards.

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