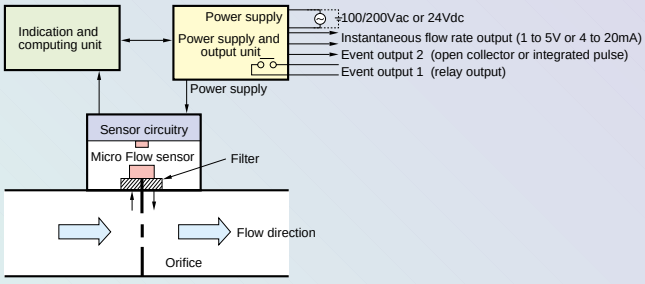
City gas 13A (LNG), air, butane and propane gases

- A wide range of models available
- Low pressure loss makes it suitable in a wide range of burner applications

Proposing a next-generation gas flow meter

The application of a μF (Micro Flow) sensor chip has enabled the development of a compact, high-accuracy gas flow meter.

Internal structure



Excess air ratio

The amount of air needed for complete combustion is theoretically determined, and referred to as theoretical quantity of air. However, in actual combustion equipment, the theoretical quantity of air is insufficient for complete combustion. Therefore, excess air is used in order to sustain stable combustion and minimize heat loss due to exhaust gas, CO and particulate.

Excess air ratio (m) = [Quantity of air used (A)] / [Theoretical quantity of fuel (AO)]

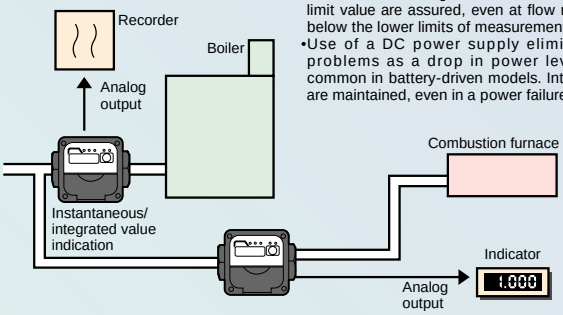
Excess air ratio is generally set at m=1.1 or higher by burner adjustment. From knowing the gap in excess air ratio caused by dirt and dust on the burner and filter, the burner can be adjusted to realize optimum air ratio as well energy savings. According to energy conservation laws, the reference and target values of air ratio for energy saving are determined for each equipment.

Application

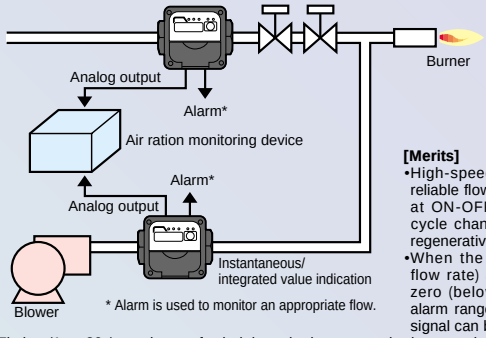
Energy management by equipment

[Merits]

- 200ms high speed response, even on ON-OFF control, provides accuracy in measurement and integration, and precisely monitors quantity of gas usage.
- Indication and integration of 2.5 to 5% of upper limit value are assured, even at flow rates that fall below the lower limits of measurement range.
- Use of a DC power supply eliminates such problems as a drop in power level that are common in battery-driven models. Integrated data are maintained, even in a power failure.



Flow rate monitoring for burner and pilot burner



* Alarm is used to monitor an appropriate flow.

[Merits]

- High-speed response ensures reliable flow measurement, even at ON-OFF control and high-cycle changeover operation of regenerative burners.
- When the valve is OFF (zero flow rate) and the flow rate is zero (below the lower limit of alarm range), the contact alarm signal can be set to no output.
- Timing (1 to 30s) can be set for judging whether or not the increase in flow rate above the alarm setpoint is an actual condition for an alarm signal. Since momentary flow fluctuations can generate alarm signals, this function can prevent false alarms.