Integrated Display Type Digital Flow Sensor For Gas
FM-200 SERIES

Related Information
■ General terms and conditions..... F-17
■ Glossary of terms..... P.1379~
■ Sensor selection guide ..... P.661~
■ General precautions P.1405

panasonic-electric-works.net/sunx

CE Conforming to EMC Directive

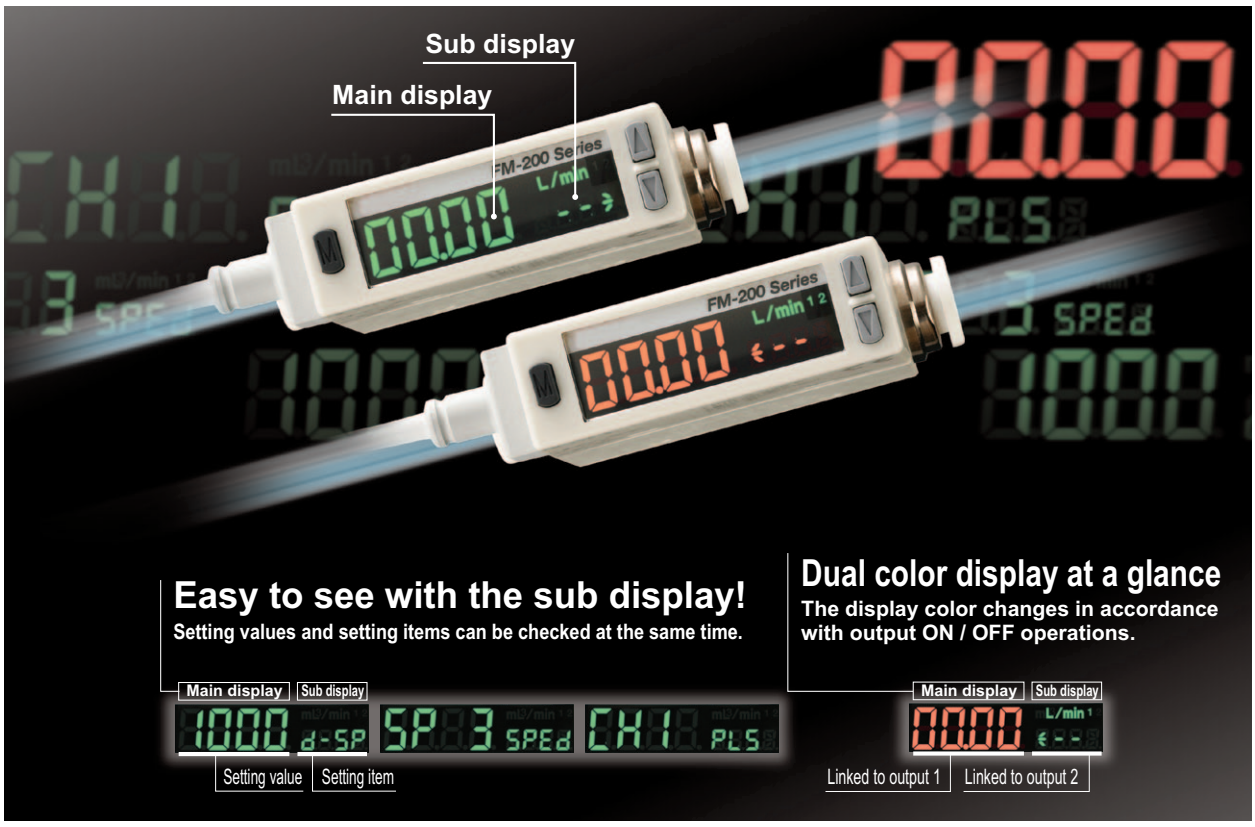
LCD Digital

With analog output

Dual color with sub display at a glance

Easy-to-see dual color with sub display!

The setting conditions are displayed on the sub display, making it much easier to keep track of operations.
In addition, the digital display which switches between 2 colors lets you check the status of sensor operation at a glance.



FIBER SENSORS
LASER SENSORS
PHOTOELECTRIC SENSORS
MICRO PHOTOELECTRIC SENSORS
AREA SENSORS
LIGHT CURTAINS
PRESSURE / FLOW SENSORS
INDUCTIVE PROXIMITY SENSORS
PARTICULAR USE SENSORS
SENSOR OPTIONS
SIMPLE WIRE-SAVING UNITS
WIRE-SAVING SYSTEMS
MEASUREMENT SENSORS
STATIC CONTROL DEVICES
ENDOSCOPE
LASER MARKERS
PLC / TERMINALS
HUMAN MACHINE INTERFACES
ENERGY CONSUMPTION VISUALIZATION COMPONENTS
FA COMPONENTS
MACHINE VISION SYSTEMS
UV CURING SYSTEMS

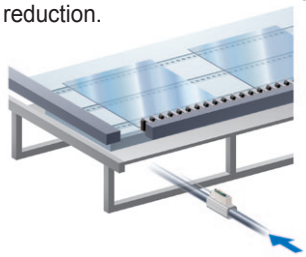
Selection Guide
Pressure/ Digital Display
Pressure/ Head-separated
Flow
Other Products

FM-200

APPLICATIONS

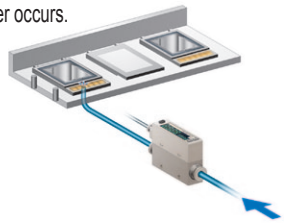
Controlling purge gas and air blowing

By controlling purge gas and air blowing, performance and quality of the products can be maintained, while contributing to cost reduction.



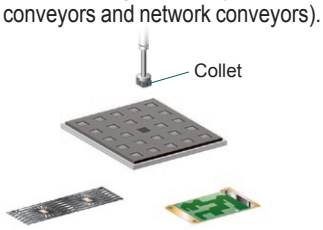
Checking seating

Flow sensors can be used for stable detection of transparent objects which were difficult to detect using photoelectric sensors. The nozzle can be extended for detection even in places where oil spatter occurs.



Checking suction

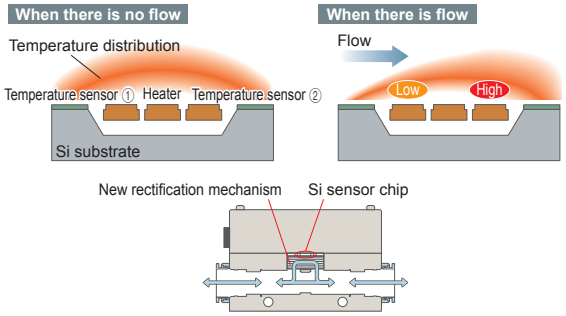
Detection of objects is possible even on conveyors with low suction pressures where air is flowing constantly (such as collet conveyors and network conveyors).



High precision of ±3 % F.S.

A new rectification mechanism and Micro Electro Mechanical System (MEMS) technology allow the sensor to be mounted on a Si sensor chip (3 × 3.5 mm 0.118 × 0.138 in). This provides an extremely small heat capacity, high precision of ±3 % F.S. and high-speed response. The two temperature sensors on each side of the heater detect the heat distribution to make bidirectional detection possible.

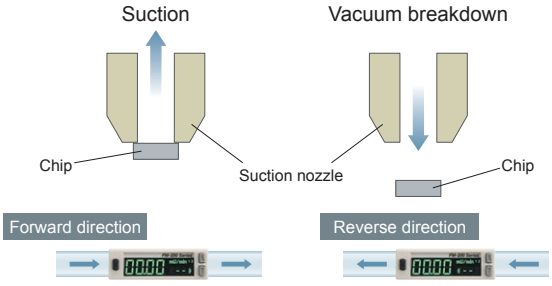
Principle of Si sensor chip



One sensor for both intake and exhaust

A single sensor can detect flows bidirectionally. In addition, it can be set to detect flows in either the forward or reverse direction only, making it suitable for a variety of applications.

For example, using a single sensor to check chip suction

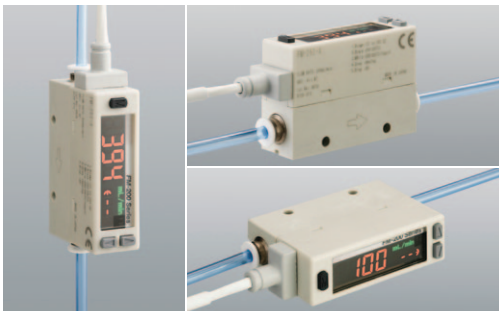


No straight pipes needed

The rectification method used by the new mechanism makes straight pipes unnecessary at both the intake and exhaust sides.

Flexible installation direction

Other than the ability to carry out bidirectional detection, there are no limitations on the installation direction, making the installation very flexible.



Connection

Quick connection is possible with a cover-attached connector.

Equipped with a wide variety of functions for greater ease of use

- **Integrated value reset function**
  During integrated mode, external input allows reset of the integrated value.
- **Analog voltage output**
  1 to 5 V analog voltage output is incorporated.
- **Key lock function**
  Key operation can be disabled to prevent mis-operation.
- **Rattle prevention function (Response time setting)**
  The response time can be set to one of seven steps from 50 ms to approximately 1,500 ms. This prevents rattling from rapid changes in flow or from noise.
- **Display rate setting**
  The display update period for the digital display can be changed to 250 ms, 500 ms or 1,000 ms in order to eliminate display flickering.
- **ECO mode**
  After approx. one minute of no operation, sensor will be switched to ECO mode.
  Backlight will be turned off to reduce power consumption.

Suitable for cost and quality control! Integrated output mode incorporated

The **FM-200** series can control and manage flows in a wide variety of output modes such as integrated output mode, depending on the required application.

INTEGRATED FLOW RATE DISPLAY

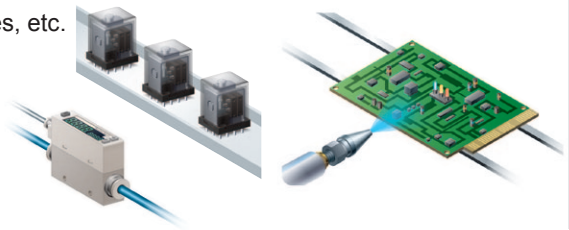
Integrated flow rate can be displayed with 7 digits

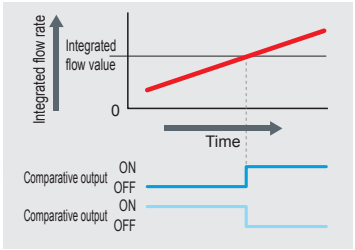
- **Integrated output mode**

Quality control

When the volume of flow of the gas being measured reaches the set integrated value, output switches to ON or OFF.

- Controls N_2 charging volumes for electronic components
- Controls air blowing volumes, etc.



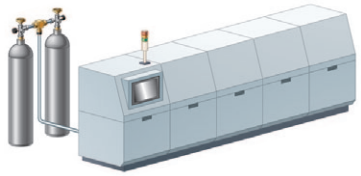


- **Integrated pulse output mode**

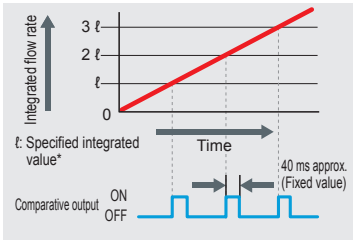
Cost management

The pulse output is generated once at every specified integrated value*.
This lets you know the amount of air consumed per unit of time easily.

- Controls N_2 purge volumes in reflow furnaces
- Controls overall volumes of air consumed by equipment, etc.

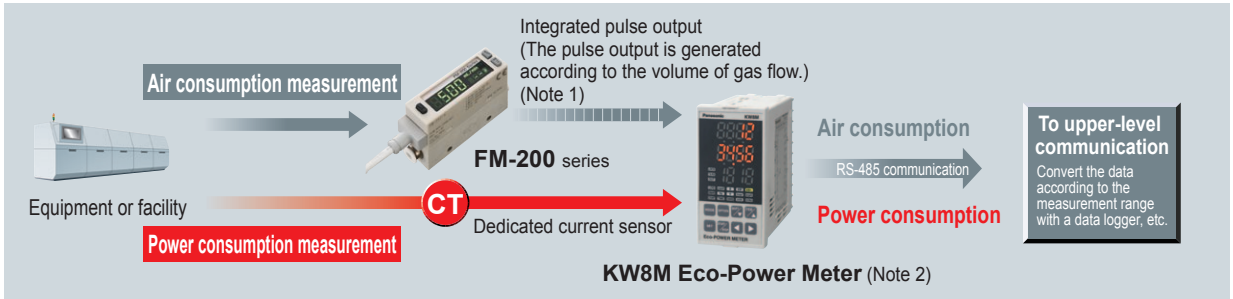


* Integrated values are specified by range and can vary. For details, refer to "SPECIFICATIONS".



Energy-saving and environmental-friendly

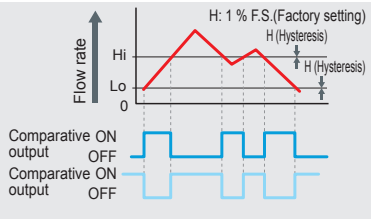
The pulse output from the flow sensor can be inputted to the pulse counter of an Eco-Power Meter so that air consumption and power consumption can both be measured simultaneously.



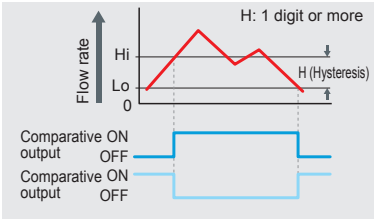
Notes: 1) Displayed value data is not outputted.
2) For details, please refer to Eco-Power Meter **KW8M** pages.

INSTANT FLOW RATE DISPLAY (FACTORY SETTING)

- **Window comparator mode**
  This mode is used for setting comparative output to ON or OFF at flow rates within the setting range.



- **Hysteresis mode**
  This mode is used for setting comparative output hysteresis to the desired level and for carrying out ON / OFF control.



- **Output OFF mode**
  Comparative output is forcibly maintained at OFF regardless of the setting value.