FTM06D
Hot Wire Thermal Air Velocity Transmitter

| Features |

- Thermal mass flow sensor
- Can measure air velocity and air volume
- Multiple output option : 4 ... 20 mA / 0 ... 10 V / RS-485 / Frequency / Pulse (Option)
- Built-in temperature compensation, accurate measurement
- Using constant temperature anemometer(CTA) technology, good sensitivity
- Unit setting : [m/s], [ft/s], [Nm^3/h], [L/min], [°C], [°F]
- Strong stainless steel housing, for a variety of harsh environments

| Introduction |

FTM06D is based on thermodynamic principle, can measure air velocity and air volume, there are 2 temperature sensors inside the probe : one for temperature measurement, the other one as a measuring conveyor after heated.
Temperature difference between the two as a basis for measuring flow rate. When the medium flow rate increases, the temperature difference decreases.
The temperature difference converted to standard signal output after processed that is why flow rate can be measured by these two sensors. All-metal housing, suitable for a variety of pipe diameters.

| Applications |

Semiconductor / Electronics / Papermaking / Food / Pharmaceuticals / Biotechnology industry / Plant CDA system / Refrigerated dryer adsorption / PSA nitrogen(N_2) generator

| Specification |

Input

Air velocity sensor	Thermal mass flow sensor
Measuring range	Air : 0 ... 120 m/s
Minimum initial value	0.1 m/s
Installation angle effect	＜3% of the measured value
	(When the installation angle＜10°)

Output

Output signal	4 ... 20 mA / 0 ... 10 V / RS-485
	Frequency (0 ... 100 Hz)
	Pulse (1 ... 100 l/pulse, option)
Signal connection	3-wire
Warm-up time	About 60 sec
Response time	t90≦3 sec
Load resistance	Voltage output : ≧100 KΩ
	Current output : ≦250 Ω

Accuracy

Accuracy (Including hysteresis,	0 ... 5 m/s : ±(1% of mv+0.06 m/s)
non-linearity and repeatability)	5 ... 10 m/s : ±(1% of mv+0.1 m/s)
	20 ... 40 m/s : ±(1% of mv+0.5 m/s)
	60 ... 90 m/s : ±(1% of mv+1 m/s)
	90 ... 120 m/s : ±(1% of mv+1.5 m/s)
Temp. influence	0.2% / °C
Uncertainty of factory calibration	±1%

Environmental

Medium	Non-corrosive gas
Operating Temp. & Humid.	0 ... 50°C / 20 ... 90%RH(Non-condensing)
Storage Temp.	-20 ... 85°C
Fitting pressure	16 bar

Electrical

Power supply	DC 24 V±10%
Current consumption	24 V : 110 mA
Electrical connection	M12

Installation

Duct type	Metal flange mount
	R1/2" movable thread

Certification

Certification	CE

Protection

IP rating	IP65(IP67 option)
Electrical protection	■ Reverse polarity
	■ Over-voltage
	■ Short-circuit

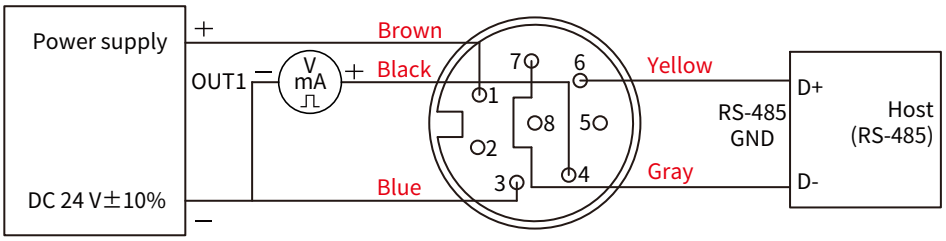
Material

Body	SUS304
Probe	SUS304
Probe head	PC with glass fiber
Weight	480 g

Display & Operation(See manual for details)

Display value	4 digits, Adjustable brightness
Measurement display	Out1(Default is Flow m/s)
Unit selection	Unit setting : [m/s], [ft/s], [Nm³/h], [L/min],
	[°C], [°F]
Function selection	Output options : 0 ... 10 V, 4 ... 20 mA
	Pipe setting range : 20 ... 9999 mm

| Diagram |



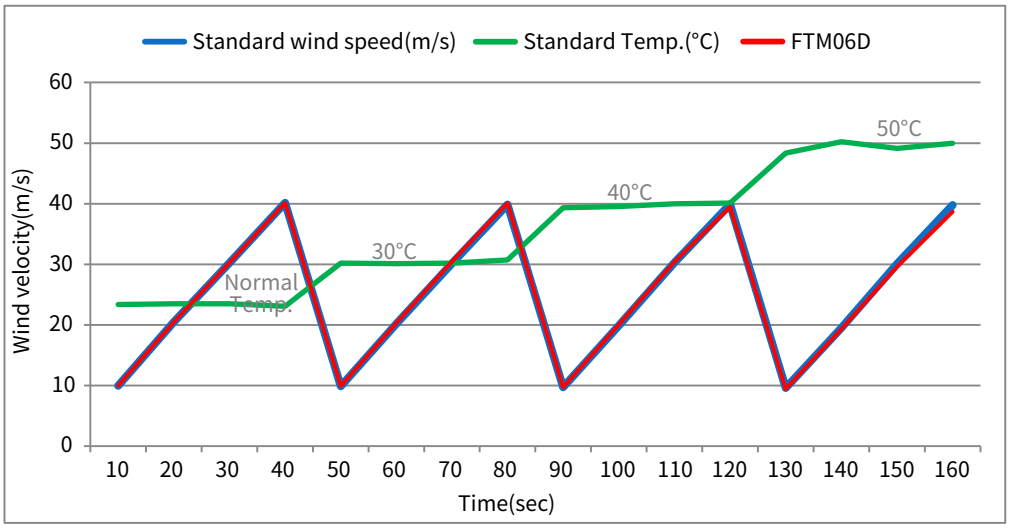
*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.

| Calibration System |

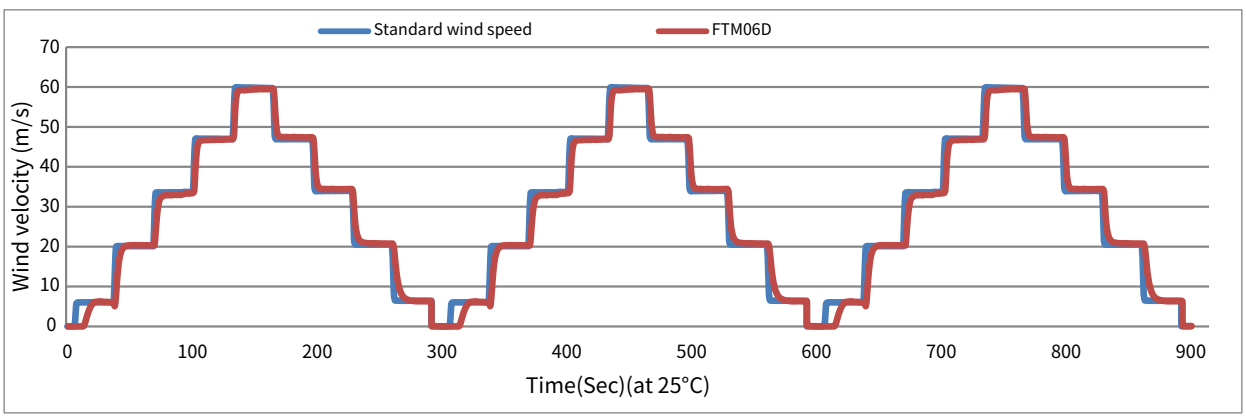
Air volume standard calibration system
Air volume : 0.5 m^3/h ... 1000 m^3/h

Referring to ISO 9300 "Flow Measurement of Critical Flow Venturi Nozzles", this device is a standard flow device combination consisting of multiple venturi nozzles according to the maximum and minimum flow ranges that need to be calibrated.

| Temperature Compensation Verification |

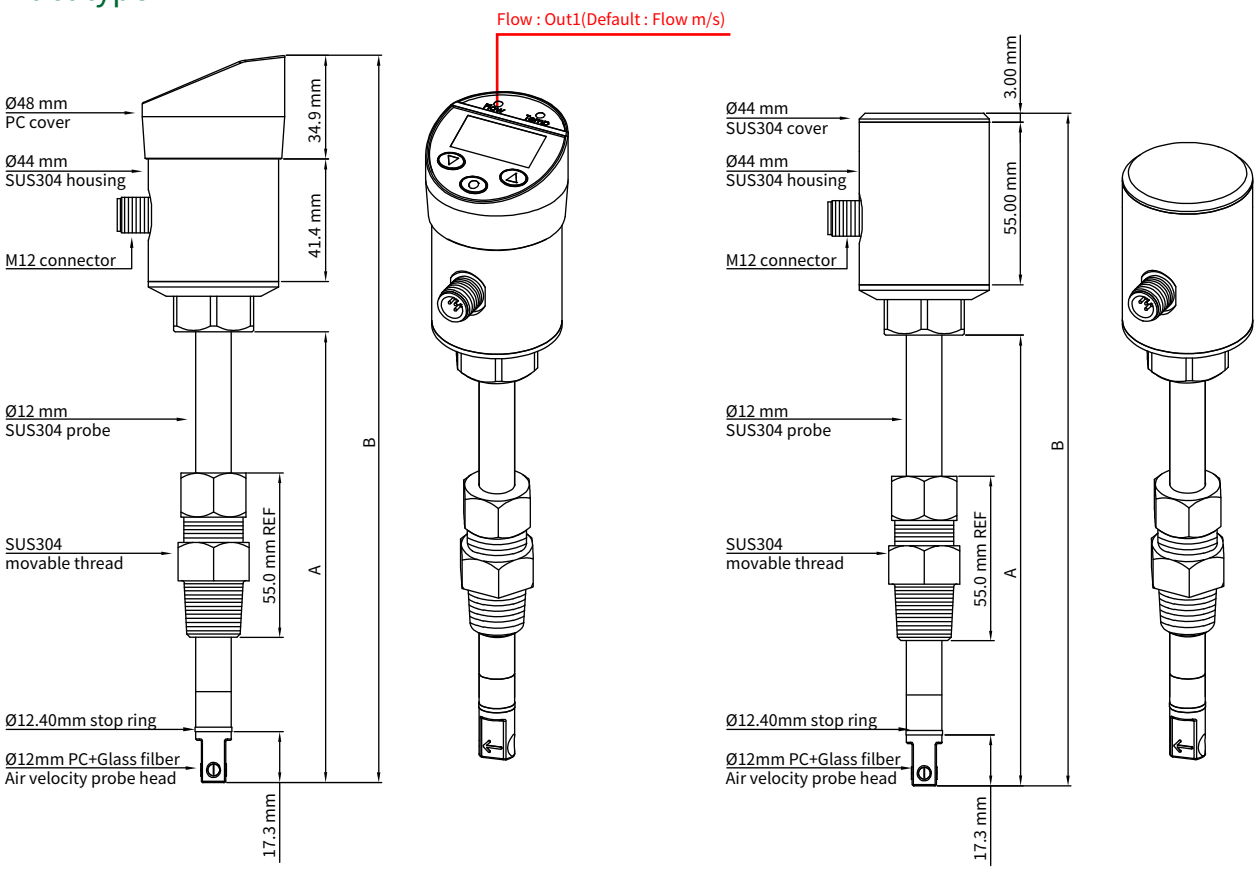


| 3-Cycle Linear Curve |



| Dimension | Unit : mm

Duct type



	Display type		
A Probe length	152 mm	202 mm	352 mm
B Product length	245.7 mm	295.7 mm	445.7 mm

	No display type		
A Probe length	152 mm	202 mm	352 mm
B Product length	227.3 mm	277.3 mm	427.3 mm

| Ordering Guide |

FTM06D – A (Medium: Air) – 40 (Range) – 2 (Type) – 1 (Probe length) – 3 (Installation) – D (Display)

Range
- 05 : 5 m/s
- 10 : 10 m/s
- 20 : 20 m/s
- 40 : 40 m/s
- 60 : 60 m/s
- 90 : 90 m/s
- 12 : 120 m/s

Type
- 2 : 4 ... 20 mA+RS-485
- 3 : 0 ... 10 V+RS-485
- 4 : Frequency+RS-485
- 5 : Pulse (Option)+RS-485

Probe length

Duct type
- 1 : 152 mm
- 2 : 202 mm
- 3 : 352 mm
- W : Customization

Installation
- 1 : Duct type (Metal flange mount)
- 3 : Duct type (R1/2" movable thread)

Display
- N : Without display
- D : Display

*Recommended best-selling

Product ordering number	Product Specifications
FTM06D-A12-23-3N	0 ... 120m/s, 4 ... 20 mA + RS-485, 352 mm

| Air Velocity / Volume Conversion Table |

ID of pipe	Air velocity inside pipe						
	5m/s	10m/s	20m/s	40m/s	60m/s	90m/s	120m/s
DN15 (1/2")	3.2 m^3/h	6.4 m^3/h	12.7 m^3/h	25.4 m^3/h	38.2 m^3/h	57.3 m^3/h	76.3 m^3/h
DN25 (1")	8.8 m^3/h	17.7 m^3/h	35.3 m^3/h	70.7 m^3/h	106 m^3/h	159 m^3/h	212.1 m^3/h
DN40 (1.5")	22.6 m^3/h	45.2 m^3/h	90.5 m^3/h	181 m^3/h	271.4 m^3/h	407.2 m^3/h	542.9 m^3/h
DN50 (2")	35.3 m^3/h	70.7 m^3/h	141.4 m^3/h	282.7 m^3/h	424.1 m^3/h	636.2 m^3/h	848.2 m^3/h
DN80 (3")	90.5 m^3/h	181 m^3/h	361.9 m^3/h	723.8 m^3/h	1085.7 m^3/h	1628.6 m^3/h	2171.5 m^3/h
DN100 (4")	141.4 m^3/h	282.7 m^3/h	565.5 m^3/h	1131 m^3/h	1696.5 m^3/h	2544.7 m^3/h	3392.9 m^3/h
DN125 (5")	220.9 m^3/h	441.8 m^3/h	883.6 m^3/h	1767.2 m^3/h	2650.7 m^3/h	3976.1 m^3/h	5301.5 m^3/h
DN150 (6")	318.1 m^3/h	636.2 m^3/h	1272.3 m^3/h	2544.7 m^3/h	3817 m^3/h	5725.6 m^3/h	7634.1 m^3/h

| Additional Option Test Report | For more detailed information please contact us.

■ILAC / TAF

YUDEN-TECH CO.,LTD. Calibration Laboratory - (ILAC / TAF) Test report.
(TAF accreditation : 3032, complying with ISO / IEC 17025) TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Air velocity transmitter	0.2 m/s ... 60 m/s

■ISO 9001

Project	Measurand level or range
Air velocity / Air volume	Air velocity : ≦ 120 m/s
	Air volume : 0.5 m^3/h ... 1000 m^3/h