

WAFS-109 EXPLOSION-PROOF THERMAL MASS FLOW SENSOR

WISE  **4.0**®
MEASURE TO MANAGE

2026



**Smart Measurement Solutions
for Compressed Air and Gases**

WISEAIR TECHNOLOGIES INDIA LLP

www.wiseair.in



About Us

Our Vision At WiseAir Technologies is to Offer Our Customers With Innovative and Advanced Measurement Solutions for Compressed Air and Gases at Affordable Costs. With Over 22 Years Experience in The Field of Compressed Air Management, We Have Developed Products that are More Accurate, Smart, Reliable, State-Of-The-Art and Easy to Use. We Aim to Transform The Traditional Manufacturing and Industrial Practices With Our Latest Smart Technologies. Hence We Primarily Focus On Offering Products Which Use Large-Scale Machine To Machine Communication (M2M) and Industrial Internet of Things (IIoT) To Provide Increased Automation, Improved Communication, Self Monitoring To Analyze and Diagnose Issues Without The Need For Human Intervention. Our “WA” Range of Smart IIOT Sensors, Can Be Easily Networked Together With Manufacturing And Energy Management Softwares. This Connectivity Allows For Seamless Data Collection, Exchange and Analysis To Potentially Facilitate Improvements In Productivity And Efficiency Resulting In Huge Economic Benefits.

Our Network

Our Smart Sensors are Developed with Design and Technology Support from Our Partners Across North America, Europe and Asia. With Our Strong Network of Partners, we offer Seamless and Best-in-Class Service to Our Customers.



Artificial Intelligence & Machine Learning Software

Our software are programmed to analysis and self Diagnose the Measured Datas

Smart IIOT Sensors

For measurement of Flow, Power, Dew Point and Pressure

Product Experts

Product Specialists with Decades of Experience in Compressed Air Measurement and Management

INTRODUCING THE **WAFS-109** EXPLOSION-PROOF THERMAL MASS FLOW SENSOR

Technical Data Sheet

Measuring Range	
Flow Range	0(0.1) ... 250 Nm/s
Turndown Ratio	1 : 2500
Accuracy	±(1.5% reading + 0.3% Full Scale) ±(1% reading + 0.3% FS) – Optional
Sample Rate	> 20 Samples/sec
Reference Cond	20 °C, 1 bar(a) - ISO 1217 (Configurable)
Processed Medium (Gas Type)	Compressed Air, Nitrogen (N ₂), Oxygen (O ₂), Carbon Dioxide (CO ₂) and other Non-Condensing Gases

Communication Output	
Analog (Standard)	4...20 mA – Flow Rate / Temperature (Configurable)
Pulse (Standard)	Consumption / Alarm
Digital (Standard)	RS485, Modbus RTU Protocol
Wireless	Bluetooth (Standard), LoRa / Wi-SUN (Option)
Connector	Wiring Terminal

Power Supply	
Input	18 ... 30 VDC, 5 W @ 24 VDC

Display	
Display	2.0" IPS LCD with Capacitive Touch

Operating Environment	
Ambient Temp	-30 ... +70 °C
Medium Temp	-40 ... 150 °C
Op. Pressure	Insertion: 0 ... 5.0 MPa (>1.6 MPa High Pressure Jig Required) In-line: 0 ... 1.6 MPa (4.0 / 6.3 MPa Option)

Explosion-Proof Class & Protection	
Ex Class	Ex db IIC T6 Gb / Ex tb IIIC T80°C Db
Protection	IP67

Others	
Process Conn	Insertion: G1/2" (ISO 228-1) In-line: R-Type Thread, Flange EN 1092-1, ANSI B16.5
Pipe Size	Insertion: DN20 ... DN1000 In-line: DN15 ... DN80
EMC	Compliant with IEC 61326-1



EXPLOSION-PROOF DESIGN Ex db IIC T6 Gb / Ex tb IIIC T80°C Db

- ▶ Thermal Mass Flow Measurement – No Pressure / Temperature Compensation Required, Integrated Temperature Measurement.
- ▶ Ultra-Wide 1:2500 Turndown Ratio, Measuring Range from 0.1 Nm/s to 250 Nm/s.
- ▶ Full-Digital Signal Processing Eliminates Zero Point Drift – Higher Accuracy and Long-Term Stability.
- ▶ Intelligent Diagnosis Senses Sensor Contamination Online and Protects the Sensor from Overheating.
- ▶ No Moving Parts, Vibration Proof, Almost Zero Pressure Drop.
- ▶ 2.0" Capacitive Touch IPS LCD with Ultra-Wide Viewing Angle.
- ▶ Bluetooth Function for Wireless Sensor Configuration and Data Transmission.
- ▶ Standard RS485 Modbus RTU Interface, 4-20 mA Current and Pulse Output.
- ▶ Insertion Type for DN20 to DN1000, Installed Online through 1/2" Ball Valve under Pressure. In-line Type for DN15 to DN80.



**2.0" IPS TOUCH DISPLAY FOR
ONLINE VALUES AND SENSOR SETTING**

Flow Range

WAFS-109 – Insertion Type

Pipe Size			Flow Range (Nm ³ /h)		
Inch	DN	ID (mm)	Min Flow	Std. Range Max Flow	High Range Max Flow
3/4	20	20	0.1	135	282
1	25	25	0.2	212	441
1¼	32	32	0.3	347	723
1½	40	40	0.5	542	1131
2	50	50	0.7	848	1767
2½	65	65	1.2	1433	2986
3	80	80	1.8	2171	4523
4	100	100	2.8	3392	7068
5	125	125	4.4	5301	11044
6	150	150	6.4	7634	15904
8	200	200	11.3	13571	28274
10	250	250	17.7	21205	44178
12	300	300	25.4	30536	63617

* For more pipe sizes and flow ranges, please consult sales

Flow Range

WAFS-109-IL – In-line Type

Pipe Size			Flow Range (Nm ³ /h)	
Inch	DN	ID (mm)	Min Flow	Max Flow
1/2	15	15	0.06	76
3/4	20	20	0.1	135
1	25	25	0.2	212
1¼	32	32	0.3	347
1½	40	40	0.5	542
2	50	50	0.7	848
2½	65	65	1.2	1433
3	80	80	1.8	2171

* For more pipe sizes and flow ranges, please consult sales



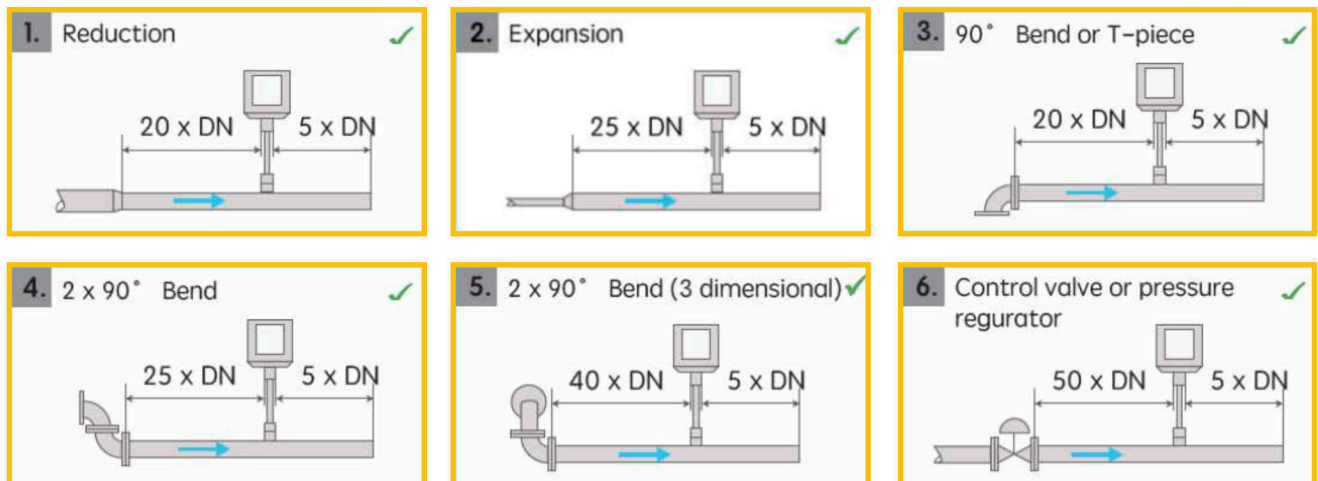
WAFS-109-IL IN-LINE TYPE

Applications

- ▶ Compressed Air & Gas Consumption Measurement in Hazardous Areas.
- ▶ Gas Consumption Measurement of a Single Machine / Plant.
- ▶ Highly Fluctuating Flow and Low-Flow Bypass Measurement.
- ▶ Process Gas Measurement, such as Nitrogen, Oxygen, Carbon Dioxide, etc.
- ▶ Industrial Processes – Chemical, Petrochemical, Power Engineering, etc.

Correct Installation

DN = Pipe Diameter



Ordering Code

WAFS-109 – Insertion Type

- ▶ **WAFS 109-A**
Explosion-proof Thermal Mass Flow Sensor, Insertion Type, 250mm Shaft (upto 8" OD), Measuring Range 0.1...250 Nm/s
- ▶ **WAFS 109-B**
Explosion-proof Thermal Mass Flow Sensor, Insertion Type, 400mm Shaft (upto 24" OD), Measuring Range 0.1...250 Nm/s
- ▶ **WAFS 109-C**
Explosion-proof Thermal Mass Flow Sensor, Insertion Type, 600mm Shaft (upto 40" OD), Measuring Range 0.1...250 Nm/s

WAFS-109-IL – In-line Type

Explosion-proof Thermal Mass Flow Sensor, In-line Type, Measuring Range 0.1...250 Nm/s

- ▶ **WAFS 109-IL-A** DN15 (1/2")
- ▶ **WAFS 109-IL-B** DN20 (3/4")
- ▶ **WAFS 109-IL-C** DN25 (1")
- ▶ **WAFS 109-IL-D** DN32 (1¼")
- ▶ **WAFS 109-IL-E** DN40 (1½")
- ▶ **WAFS 109-IL-F** DN50 (2")

** For more pipe sizes and flow ranges, please consult sales*

Options

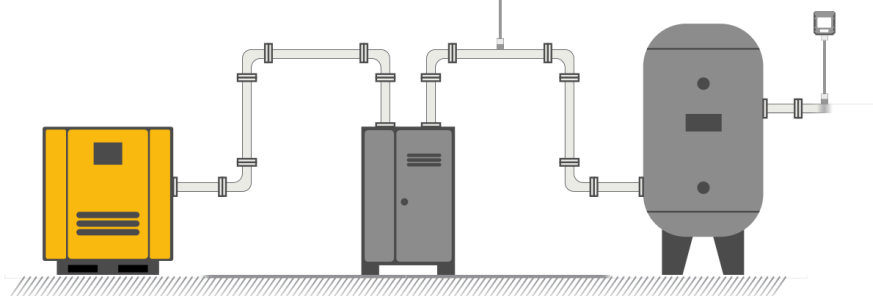
Option	WAFS-109 (Insertion)	WAFS-109-IL (In-line)
Display – 2.0" IPS LCD with Capacitive Touch Panel	WAFS 109-L	WAFS 109-IL-L
Gas Option: Nitrogen (N ₂)	WAFS 109-G02	WAFS 109-IL-G02
Gas Option: Hydrogen (H ₂), Real Gas Calibration	WAFS 109-G03	WAFS 109-IL-G03
Gas Option: Helium (He), Real Gas Calibration	WAFS 109-G07	WAFS 109-IL-G07
Gas Option: Other Specified Gases	WAFS 109-G08	WAFS 109-IL-G08
High Accuracy Calibration (1% Rdg, ±0.3% FS)	WAFS 109-H	WAFS 109-IL-H
High Pressure Rating 0–40 Bar	WAFS 109-PR40	WAFS 109-IL-PR40
High Pressure Rating 0–63 Bar	WAFS 109-PR63	WAFS 109-IL-PR63
Wi-SUN Sub-module, 915 MHz (Asia / America / Australia)	WAFS 109-WiSun915	WAFS 109-IL-WiSun915
Wi-SUN Sub-module, 868 MHz (Europe / Middle East)	WAFS 109-WiSun868	WAFS 109-IL-WiSun868

Correct Installation



Supply Side
 - Wet air
 - High velocity

Demand Side
 - Dry air
 - Low to medium velocity



Installation under Pressure

Insertion type is installed online through a 1/2" ball valve under pressure – no downtime, almost zero pressure drop. Above 1.6 MPa, a high pressure installation jig is required.



For More Info
SCAN HERE



UNDERSTAND COMPRESSED AIR SYSTEM DYNAMIC WITH OUR ADVANCED MEASUREMENT SOLUTIONS

MEASURE – MANAGE – SAVE – SUSTAIN



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