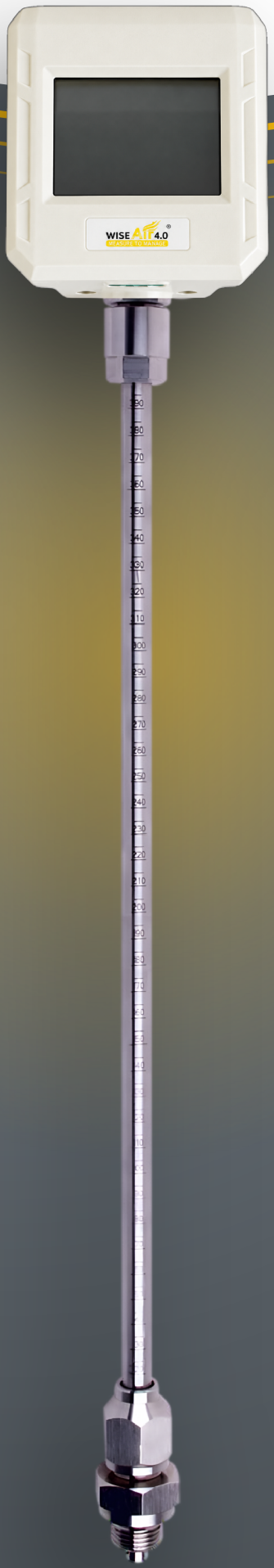
WISE AIR 4.0®
MEASURE TO MANAGE



2026 · PRODUCT BROCHURE

Flow Sensors

WAFS-106

Thermal Mass Flow Sensor

INSERTION TYPE · THERMAL MASS

Direct mass flow from 0.1 to 250 Nm/s — fitted under pressure through a ½" ball valve.

Flow | Velocity | Consumption | Temperature

0.1–250
Nm/s velocity range

±1 %
of reading + 0.3 % FS

0–50 bar
operating pressure

DN20–300
pipe sizes

OVERVIEW

Mass flow, measured directly. Down to the last leak.

The WAFS-106 measures compressed air and gas flow by thermal dispersion. Two precision RTD elements sit in the gas stream: one reads the gas temperature, the other is heated, and the power needed to keep it warmer rises with mass flow. The result is standard flow measured directly — no pressure or temperature compensation, and almost no pressure drop. With a 1:2500 turndown from 0.1 to 250 Nm/s, it sees night-shift leakage and full-load peaks alike. Insert it under pressure through a ½" ball valve in pipes from DN20, read flow, consumption and temperature on the colour touch display, and send the data to your PLC or to WiseAir's WASM-604 monitoring platform.



MEASURES

- Flow
- Velocity
- Consumption
- Temperature

Direct mass flow

Thermal dispersion measures mass flow directly — no separate pressure or temperature compensation needed.

1:2500 turndown

0.1 to 250 Nm/s: night-shift leaks and full production peaks on the same sensor.

Hot-tap installation

Insert and remove through a ½" ball valve without shutting down the line.

Almost no pressure drop

A slim probe with no moving parts: no permanent pressure loss, nothing to wear.

Touch display and logger

2.8" colour touch screen; built-in logger for 10 million readings on -AH and -BH models.

Ready to connect

RS485 Modbus RTU, isolated 4–20 mA and pulse output as standard, plus Bluetooth for wireless set-up.

APPLICATIONS

- Consumption by line, department or machine
- Leak detection and leakage rate measurement
- Main header and branch monitoring
- Peak and average demand profiling
- Temporary or permanent energy audits
- Nitrogen, oxygen, CO_2, argon and other dry gases

FLOW REFERENCE

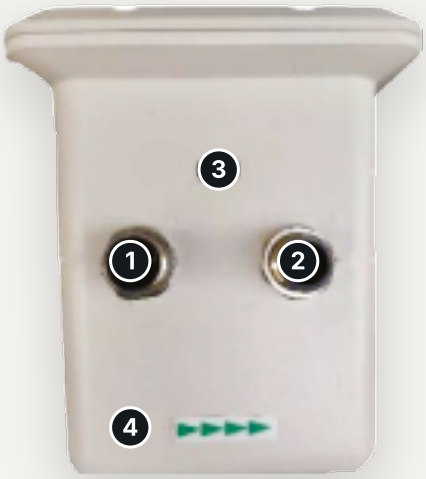
Readings are standard (normal) flow at the reference you set — factory setting 20 °C, 1 bar(a) per ISO 1217.

PRODUCT ANATOMY

Inside the WAFS-106

2.8" colour touch display
Flow, consumption and temperature at a glance; logger on -AH and -BH models.

Bluetooth set-up
Configure and read the sensor wirelessly from a phone.



CONNECTIONS (UNDERSIDE)

1. **M12 A** Power 18–30 VDC + RS485 Modbus RTU
2. **M12 B** Isolated 4–20 mA + pulse output
3. **Micro USB** Service port
4. **Flow arrows** Point them in the direction of flow

Depth scale on the shaft
Read the insertion depth at the valve and set the tip to pipe centre.

250 or 400 mm stainless shaft
Fits pipes from DN20; the longer shaft for larger headers.

G ½" fitting with gland nut
Insert and remove under pressure through a ½" ball valve.

Thermal sensing tip
Heated and reference RTD elements measure mass flow directly.

TECHNICAL DATA

Specifications

MEASUREMENT

Principle	Thermal mass flow (thermal dispersion), insertion
Velocity range	0.1 ... 250 Nm/s (turndown 1:2500)
Measured values	Normal flow, normal velocity, consumption, gas temperature
Flow reference	20 °C, 1 bar(a) per ISO 1217; user-programmable

ACCURACY

Flow	±(1 % of reading + 0.3 % FS)

MEDIA

Gases	Air, N_2, O_2, CO_2, Ar, He, H_2, N_2O, natural gas; others on request
Condition	Dry, non-corrosive, non-explosive gases

OUTPUTS AND INTERFACE

Digital	RS485, Modbus RTU
Analogue	4–20 mA, isolated
Pulse	Consumption pulse, settable volume
Wireless	Bluetooth (standard); LoRa (option)

DISPLAY AND LOGGING

Display	2.8" colour LCD, capacitive touch
Data logger	10,000,000 readings (-AH, -BH)

POWER AND ENVIRONMENT

Supply	18 ... 30 VDC
Consumption	5 W max.
Ambient	−30 ... +70 °C, indoor
Medium temperature	−40 ... +150 °C
EMC	IEC 61326-1

MECHANICAL

Operating pressure	0 ... 5.0 MPa (50 bar(g)); above 1.6 MPa with high-pressure installation device
Shaft length	250 mm (-A, -AH) or 400 mm (-B, -BH)
Process connection	G ½" (ISO 228-1), via ½" ball valve
Electrical connection	2 × M12, 5-pin, female; micro USB
Calibration interval	Every 2 years

FLOW
±1 %
of reading + 0.3 % FS

TURNDOWN
1:2500
0.1 ... 250 Nm/s

PRESSURE
50 bar
max. operating pressure

Calibration Every sensor is calibrated before dispatch and ships with a calibration certificate. Recalibrate every 2 years — remove it through the ball valve without shutting down the line.

SIZING AND INSTALLATION

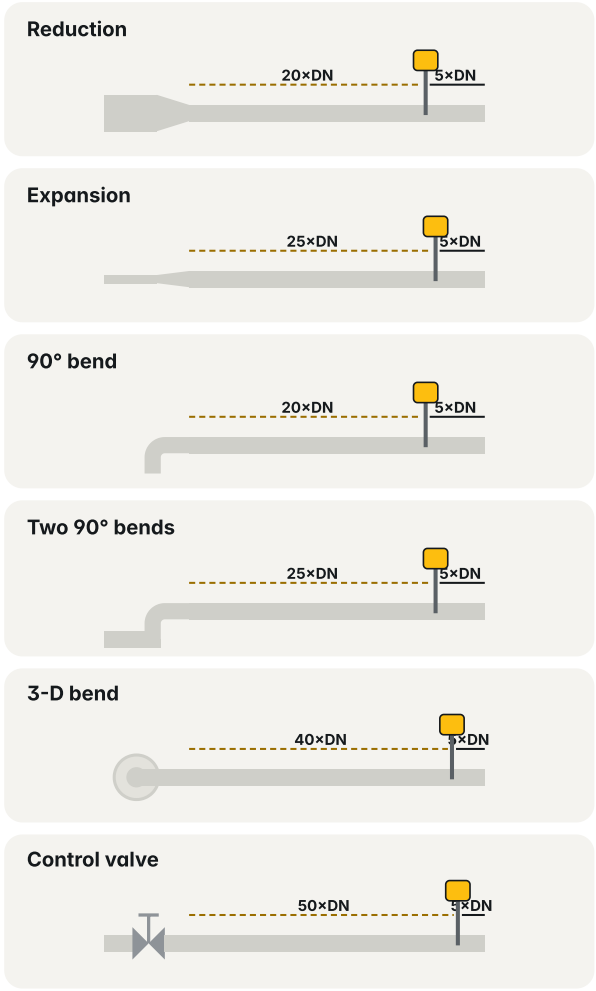
Choose the size. Fit it right.

Flow range by pipe size (nominal ID, normal conditions)

PIPE	DN	MIN NM³/H	MAX NM³/H STD	MAX NM³/H HIGH
¾"	20	0.11	**136**	283
1"	25	0.18	**212**	442
1¼"	32	0.29	**347**	724
1½"	40	0.45	**543**	1,131
2"	50	0.71	**848**	1,767
2½"	65	1.2	**1,434**	2,986
3"	80	1.8	**2,171**	4,524
4"	100	2.8	**3,393**	7,069
5"	125	4.4	**5,301**	11,045
6"	150	6.4	**7,634**	15,904
8"	200	11	**13,572**	28,274
10"	250	18	**21,206**	44,179
12"	300	25	**30,536**	63,617

Minimum at 0.1 Nm/s; standard range to 120 Nm/s, high range to 250 Nm/s; from nominal pipe ID. Above DN300, contact WiseAir.

Minimum straight pipe runs



Inlet (before) and outlet (after) lengths in multiples of pipe diameter DN.

1 Choose the point

Straight horizontal pipe, after the first filter or water separator.

2 Fit the valve

Weld the G ½" nipple, drill ≥ 13 mm and fit the ½" ball valve.

3 Insert and set depth

Tip at pipe centre: depth = OD/2 + valve height. Lock the gland nut.

4 Align and connect

Arrows with the flow, sensor upright ±15°. Plug in the M12 cable.

ORDERING INFORMATION

WAFS-106-A	Insertion thermal mass flow sensor, 250 mm shaft, 0.1 ... 250 Nm/s, 2.8" touch display, Modbus RTU / 4–20 mA / pulse, Bluetooth
WAFS-106-B	As WAFS-106-A, with 400 mm shaft for larger pipes
WAFS-106-AH	As WAFS-106-A, with built-in data logger (10 million readings)
WAFS-106-BH	As WAFS-106-B, with built-in data logger (10 million readings)

OPTIONS AND ACCESSORIES

High-pressure installation device	For insertion above 1.6 MPa (16 bar(g))
Y-type M12 splitter	Several sensors on one RS485 bus
WADL-301 data logger	Collects data from several WiseAir sensors
WASM-604 Smart Monitoring	Online dashboards, analysis and reports

IN THE BOX

- WAFS-106 flow sensor
- M12 connection cable, 2 m
- Power adapter
- Stainless-steel weld nipple and ½" ball valve
- Mounting spanner
- Calibration certificate
- User manual

CONNECT TO WISEAIR 4.0

WAFS-106
flow · consumption · temperature

RS485 Modbus RTU · 4–20 mA · pulse

WADL-301 or PLC
data logger / plant control

Ethernet · 4G

WASM-604
dashboards, alerts, energy reports

WISEAIR 4.0 MEASURE TO MANAGE

From night-time leaks to full-load peaks.

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