WISE AIR 4.0®
MEASURE TO MANAGE



2026 · PRODUCT BROCHURE

Flow Sensors

WAFS-105

Thermal Mass Flow Sensor

THERMAL MASS · INLINE TYPE

A thermal mass flow sensor in its own measuring tube — screw it into the line and measure.

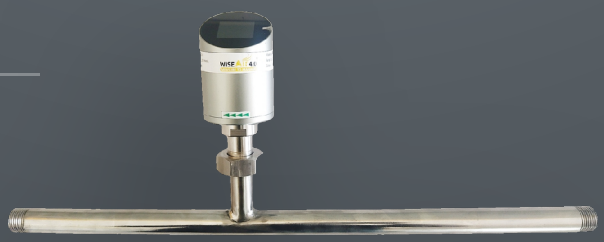
Flow | Velocity | Consumption | Temperature

0.1–250
Nm/s velocity range

±1 %
of reading + 0.3 % FS

DN15–50
R thread; DN65–80 on request

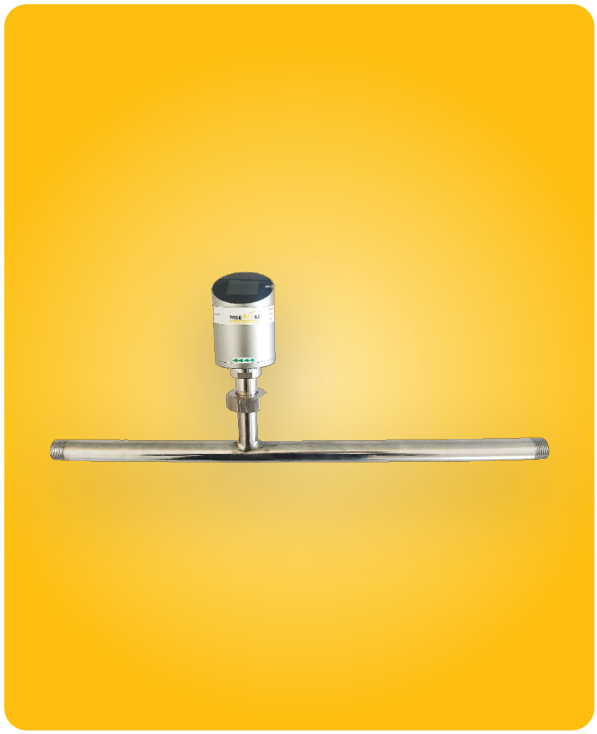
0–16 bar
40 bar as an option



OVERVIEW

Built into the pipe. Factory-set. Ready to measure.

The WAFS-105 is the inline version of WiseAir's thermal mass flow sensor. The sensor sits in a factory-made measuring tube, so its position and the pipe diameter are set and calibrated at the factory — there is no insertion depth to adjust and no pipe size to enter. Screw it into a DN15 to DN50 line and it measures standard flow, consumption and gas temperature from 0.1 to 250 Nm/s, with no moving parts and almost no pressure drop. It suits small lines, single machines, nitrogen generators and test benches, and connects to your PLC or to WiseAir's WASM-604 monitoring platform.



MEASURES

- Flow
- Velocity
- Consumption
- Temperature

True mass flow

Measures mass flow directly, independent of pressure and temperature changes, with integrated gas temperature measurement.

1:2500 turndown

0.1 to 250 Nm/s in one sensor — from leakage flow to full-load demand.

Inline measuring tube

Sensor position and diameter are fixed and calibrated at the factory. Nothing to set on site.

No moving parts

Vibration-proof, negligible pressure drop and a stable long-term signal.

Colour touch display

1.5" wide-angle colour LCD with capacitive touch for live values, units and settings.

Ready to connect

RS485 Modbus RTU, isolated 4–20 mA and pulse output as standard, with full electrical isolation.

APPLICATIONS

- Consumption of single machines and lines
- Leak detection and leakage-rate measurement
- Nitrogen generator output
- Test benches and machine builders
- Nitrogen, oxygen, CO_2 and other process gases
- Chemical, petrochemical and power plants

FLOW REFERENCE

Readings are standard (normalised) flow at 20 °C and 1 bar(a) to ISO 1217 — or set your own reference temperature and pressure.

PRODUCT ANATOMY

Inside the WAFS-105

1.5" colour touch display
Flow, consumption, velocity and temperature on three swipe pages.





Isolated digital electronics
Fully digital signal processing in an aluminium housing, for precision and range.

Flow-direction arrows
Install with the arrows pointing in the direction of flow.

Sensor neck
Fixed into the measuring tube at the factory — no insertion depth to set.

One factory-set meter
Head and measuring tube are assembled and set up at the factory as one unit.

Inline measuring tube
DN15 to DN50 with R male thread; flanges on request.

REAR CONNECTIONS

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

TECHNICAL DATA

Specifications

MEASUREMENT

Principle	Thermal mass, inline measuring tube
Velocity range	0.1 … 250 Nm/s (turndown 1:2500)
Measured values	Standard flow, velocity, consumption, gas temperature
Accuracy	±(1 % of reading + 0.3 % FS)
Reference	20 °C, 1 bar(a), ISO 1217; programmable

MEDIA

Gases	Air, N_2, O_2, CO_2, Ar, He, H_2, N_2O, natural gas; others on request
Condition	Clean, dry, non-corrosive; install after the first separator

OUTPUTS AND INTERFACE

Digital	RS485, Modbus RTU
Analogue	4–20 mA, isolated, scalable
Pulse	Consumption pulse output
Connection	2 × M12, 5-pin

DISPLAY

Display	1.5" colour LCD, capacitive touch
Flow units	Nm^3/h, Sm^3/h, NL/min, kg/h, scfm and more

PROCESS CONDITIONS

Medium temperature	−40 … +150 °C
Operating pressure	0 … 16 bar(g); 40 bar(g) as an option

POWER AND ENVIRONMENT

Supply	18 … 30 VDC
Consumption	5 W
Ambient	−30 … +70 °C, indoor
EMC	IEC 61326-1

MECHANICAL

Sizes	DN15, 20, 25, 32, 40, 50; DN65, 80 on request
Connection	R (taper) male thread; flanges EN 1092-1 or ASME B16.5 on request
Housing	Aluminium
Calibration interval	Every 2 years

FLOW
±1 %
of reading + 0.3 % FS

TURNDOWN
1:2500
0.1 … 250 Nm/s

PRESSURE
0–16 bar
40 bar as an option

Calibration Every sensor is calibrated before dispatch and ships with a calibration certificate. Recalibrate every 2 years; fit isolation valves and a bypass to remove it without stopping production.

SIZING AND INSTALLATION

Choose the size. Fit it right.

Models and flow range (Nm³/h, compressed air)

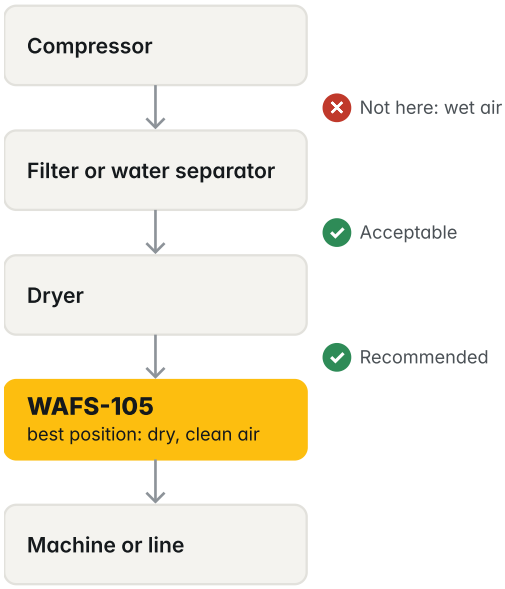
MODEL	DN	THREAD	MIN	MAX 120 NM/S	MAX 250 NM/S
105-A	15	R ½"	**0.06**	76	159
105-B	20	R ¾"	**0.11**	136	283
105-C	25	R 1"	**0.18**	212	442
105-D	32	R 1¼"	**0.29**	347	724
105-E	40	R 1½"	**0.45**	543	1,131
105-F	50	R 2"	**0.71**	848	1,767
—	65	Flange	**1.2**	1,434	2,986
—	80	Flange	**1.8**	2,171	4,524

Minimum at 0.1 Nm/s; maxima at 120 and 250 Nm/s, from nominal ID. 1 Nm³/h ≈ 0.589 cfm. DN65 and DN80 on request.

SIZE BY FLOW, NOT ONLY BY PIPE

A line that uses up to 400 Nm³/h fits the WAFS-105-E (DN40) well inside 120 Nm/s — and the same meter still reads leakage flows down to 0.45 Nm³/h. Connect it with pipe of the same inner diameter.

Where to install



Choosing the location

- Choose a straight pipe section away from bends, valves and reducers; keep as much straight pipe upstream as possible
- Connect pipes with the same inner diameter as the measuring tube
- Sensor head upright on a horizontal pipe where possible, so condensate cannot collect
- Avoid liquid water, oil carry-over and heavy vibration; install indoors or protect from sun and rain
- Plan isolation valves and a bypass if the meter must come out without a shutdown

1

Prepare the pipe

Depressurise, vent and purge the line so dirt, scale and oil cannot reach the sensor.

2

Check the direction

The meter is not bidirectional — the green arrows must point with the flow.

3

Seal and fit

Seal the R threads, keep sealant out of the tube, and tighten on the tube only — never by the head.

4

Pressurise and connect

Pressurise slowly, check the joints for leaks and plug in the M12 cable.

ORDERING INFORMATION

WAFS-105-A	Inline thermal mass flow sensor, DN15, R ½", 0 … 16 bar(g), 0.1 … 250 Nm/s, 1.5" colour touch display, Modbus RTU / 4–20 mA / pulse
WAFS-105-B	As WAFS-105-A, DN20, R ¾"
WAFS-105-C	As WAFS-105-A, DN25, R 1"
WAFS-105-D	As WAFS-105-A, DN32, R 1¼"
WAFS-105-E	As WAFS-105-A, DN40, R 1½"
WAFS-105-F	As WAFS-105-A, DN50, R 2"

OPTIONS AND ACCESSORIES

40 bar version	Operating pressure up to 40 bar(g)
Flanged connection	EN 1092-1 or ASME B16.5; DN65 and DN80
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-105 sensor with measuring tube
- Power adapter
- M12 connection cable, 2 m
- Calibration certificate and user manual

CONNECT TO WISEAIR 4.0

WAFS-105
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

Know what every machine really uses.

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