WISE AIR 4.0
MEASURE TO MANAGE

USER MANUAL · 2026 EDITION

# WAFS-103

## Differential Pressure Pitot Tube Flow Meter

Models covered: WAFS-103-A (250 mm shaft), WAFS-103-B (400 mm shaft)



| 5–300 Nm/s | ±1% rdg | 0–16 bar | DN25–DN300 |
|---|---|---|---|
| Velocity range | +0.3% FS flow accuracy | Integrated pressure | Pipe sizes |

INSTALLATION · OPERATION · CONFIGURATION · MAINTENANCE

WISEAIR TECHNOLOGIES INDIA LLP

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### ABOUT WISEAIR

WiseAir Technologies India LLP designs and supplies smart measurement instruments for compressed air and industrial gases — flow, dew point, pressure and power sensors, data loggers, smart drains and leak detection tools. Every WiseAir product is built to make compressed-air energy use **visible, measurable and manageable**.

WiseAir sensors work on their own or as part of the **WiseAir WASM-604 Smart Monitoring platform**, which collects data over Modbus / 4–20 mA, analyses it and reports energy, demand and leakage in real time.

### DOCUMENT

| | |
|---|---|
| Document | WA-UM-WAFS103-26 |
| Edition | 2026 Edition · Rev 1.0 |
| Issued | October 2026 |
| Supersedes | Release 4 – 2023 |

# 01 Safety and general information

Read this manual in full before you install, operate or maintain the WAFS-103. Keep it with the flow meter and make it available to everyone who works on the installation.

The WAFS-103 is designed only for the applications described in this manual. WiseAir is not liable for damage caused by failure to follow this manual. Tampering with the device in any way not described here cancels the warranty.

## Intended use

Measurement of flow, velocity, consumption, pressure and temperature of compressed air and the technical gases listed in the specifications, in closed pipes from DN25 to DN300, within the rated pressure and temperature limits. The WAFS-103 is not approved for use in explosive (hazardous) areas.

## Safety symbols used in this manual

| | |
|---|---|
| **Danger / Warning** | Risk of serious injury or death if the instruction is ignored. |
| **Caution** | Risk of damage to the meter or the installation, or of incorrect readings. |
| **Note / Tip** | Useful information for correct installation and operation. |

**COMPRESSED AIR SAFETY**

- Escaping air or bursting parts can cause serious injury or death.
- Never exceed the maximum permitted pressure (16 bar).
- Use only pressure-tight installation material.
- Keep clear of the path of escaping air.
- Depressurise the system before any work that is not hot-tapping through the ball valve.

**ELECTRICAL SAFETY**

- Contact with live parts can cause electric shock, serious injury or death.
- Follow all regulations for electrical installations.
- Disconnect the power supply before maintenance.
- Only authorised, qualified personnel may carry out electrical work.

**INSTALLATION AND OPERATION**

- Install the meter correctly and calibrate it regularly. Otherwise readings will be wrong.
- Always observe the flow direction. The arrows on the housing show the direction.
- Do not exceed the maximum operating temperature at the sensor tip.
- Do not use the meter in explosive areas.
- Do not exceed the permitted operating, storage or transport limits.
- Do not open or dismantle the meter.
- Use a spanner to tighten the meter. Never use the housing as a lever.
- Follow national regulations during installation and operation.

### Storage and transport

- Transport temperature: −10 °C to +60 °C.
- Storage temperature: −10 °C to +50 °C, humidity below 90 % RH, non-condensing.
- Keep the meter out of direct sunlight and UV radiation during storage.

## 02 Product overview

The WAFS-103 is an insertion-type differential pressure (Pitot tube) flow meter for wet and dry compressed air and gases. It has an integrated pressure sensor and temperature sensor, a 2.8" colour touch screen and a built-in data logger.

### Measuring principle

The Pitot probe measures the dynamic (total) pressure facing the flow and the static pressure behind it. The difference between the two is a measure of gas velocity. The meter combines this with the measured line pressure and temperature to calculate velocity, volume flow and consumption. Online compensation corrects for changes in temperature and pressure.

Anti-condensation technology lets the meter work in saturated (wet) compressed air, for example directly after the compressor's first filter or water separator. This makes the WAFS-103 well suited to compressor output (FAD) measurement.

> **MINIMUM VELOCITY**
> The meter needs a gas velocity of at least 5 Nm/s. Below this the flow reading is zero.

### Reference conditions: FAD, standard or normal flow

The WAFS-103 can report flow as FAD (free air delivery), standard flow or normal flow. The reference temperature and atmospheric pressure are user-set (Settings > Normalization; see section 8). The factory default reference is 20 °C and 100 kPa. Always state the reference conditions when you compare readings with compressor data sheets or other meters.

### Key features

**Multi-parameter**
Flow, velocity, consumption, pressure and temperature from one insertion point.

**Wet air capable**
Anti-condensation design for saturated air on the supply side.

**Hot-tap installation**
Insert and remove through a ½" ball valve, even under pressure.

**Wide range**
5–300 Nm/s with low pressure drop. Pipe sizes DN25 to DN300.

**Two outputs as standard**
RS485 Modbus RTU, plus isolated 4–20 mA and pulse.

**Touch display and logger**
2.8" colour touch screen and up to 10,000,000 logged values, exported via micro USB.

**Bluetooth**
Bluetooth interface for configuration with the WiseAir 4.0 mobile app (Android).

**Plug and play**
WiseAir supports remote installation and commissioning.

**WASM-604 ready**
Connects to WASM-604 Smart Monitoring through the Modbus output.

## Typical applications

- Compressor output and FAD measurement
- Compressed air consumption by line, area or machine
- Leakage and non-productive demand assessment
- Peak and average demand profiling
- Energy audits (temporary or permanent installation)
- Technical gases: nitrogen, oxygen, $CO_2$, argon and others

**TIP**
Avoid vortex meters and orifice plates in compressed air lines. They create a permanent pressure drop that increases energy cost. The Pitot probe has a very low pressure drop.

# 03 What's in the box and optional accessories




Standard scope of supply

1. WAFS-103 flow meter
2. Connection spanner
3. User manual
4. Calibration certificate
5. M12 connection cable, 2 m
6. Stainless steel nipple
7. Stainless steel ½" ball valve

**NOTE**
A power supply unit is not included. Use an 18–30 VDC supply rated for at least 24 W per meter (see specifications).

## Optional accessories and services

| Item | Purpose |
|---|---|
| **Y-type M12 splitter** | Connect several sensors on one RS485 bus |
| **WASM-604 Smart Monitoring** | Online monitoring, analysis and reports (smartmonitoring.wiseair.asia) |
| **WADL-301 data logger** | Data acquisition from several WiseAir sensors |
| **High-temperature version** | Process temperature up to 390 °C, on request |
| **NABL calibration certificate** | Accredited calibration certificate, optional extra |

Contact WiseAir support (details on the back cover) for prices and other accessories.

# 04 Technical specifications

| MEASUREMENT | |
|---|---|
| Principle | Differential pressure (Pitot tube), insertion type, anti-condensation |
| Flow (velocity) range | 5 ... 300 Nm/s |
| Pressure range | 0 ... 16 bar |
| Process temperature | −40 ... +200 °C (standard) up to 390 °C (option, on request) |
| Measured values | Flow, velocity, consumption, pressure, temperature |
| Flow reference | FAD, standard or normal; user-set reference temperature and atmospheric pressure (default 20 °C, 100 kPa) |

| ACCURACY | |
|---|---|
| Flow | ±(1 % of reading + 0.3 % of full scale) |
| Pressure | ±0.5 % of full scale |
| Temperature | ±0.5 °C |

| MEDIA AND APPLICATION | |
|---|---|
| Media | Air, argon, carbon dioxide, helium, hydrogen, natural gas, nitrogen, nitrous oxide, oxygen |
| Application | Wet and dry compressed air, high velocities |

| OUTPUTS | |
|---|---|
| Digital | RS485, Modbus RTU |
| Analogue | 4–20 mA (4-wire, isolated) |
| Pulse | Consumption pulse (volume per pulse settable) |
| Configuration | Touch screen, Bluetooth (WiseAir 4.0 Android app) |

| POWER SUPPLY | |
|---|---|
| Supply voltage | 18 ... 30 VDC |
| Consumption | 6.5 W at 24 VDC<br>24 W at 24 VDC with anti-condensation active |
| EMC | IEC 61326-1 |

| DISPLAY AND DATA LOGGING | |
|---|---|
| Display | 2.8" colour LCD with touch panel |
| Data logger | Up to 10,000,000 values; CSV export via micro USB |

| MECHANICAL | |
|---|---|
| Pipe sizes | DN25 ... DN300 |
| Shaft length | 250 mm (WAFS-103-A) or 400 mm (WAFS-103-B) |
| Process connection | G ½" thread |
| Electrical connection | 2 × M12, 5-pin, female |
| Ambient temperature | −20 ... +60 °C (indoor use) |
| Recommended calibration | Every 2 years |

### Ordering codes

| | |
|---|---|
| WAFS-103-A | Pitot tube flow meter, 5 ... 300 Nm/s, integrated pressure and temperature, 250 mm shaft, Modbus RTU / 4–20 mA / pulse, Bluetooth |
| WAFS-103-B | As WAFS-103-A, with 400 mm shaft |

*Options on request: high-temperature version (up to 390 °C), NABL calibration certificate.*

## 05 Flow range by pipe size

**Flow range at 5 Nm/s (min.) and 300 Nm/s (max.)**

| Inch | DN | ID (mm) | Min (Nm³/h) | Max (Nm³/h) | Min (cfm) | Max (cfm) |
|---|---|---|---|---|---|---|
| 1 | 25 | 25 | 8.8 | 530 | 5.2 | 311.9 |
| 1¼ | 32 | 32 | 14.5 | 868 | 8.5 | 510.8 |
| 1½ | 40 | 40 | 22.6 | 1,357 | 13.3 | 798.6 |
| 2 | 50 | 50 | 35.3 | 2,120 | 20.8 | 1,247.6 |
| 2½ | 65 | 65 | 59.7 | 3,583 | 35.1 | 2,108.6 |
| 3 | 80 | 80 | 90.5 | 5,428 | 53.3 | 3,194.4 |
| 4 | 100 | 100 | 141.4 | 8,482 | 86.2 | 4,991.7 |
| 5 | 125 | 125 | 220.9 | 13,253 | 130.0 | 7,799.4 |
| 6 | 150 | 150 | 318.1 | 19,085 | 187.2 | 11,231.5 |
| 8 | 200 | 200 | 565.5 | 33,929 | 332.8 | 19,967.2 |
| 10 | 250 | 250 | 883.6 | 53,014 | 520.0 | 31,198.7 |
| 12 | 300 | 300 | 1,272.3 | 76,340 | 748.7 | 44,926.1 |

Calculated as velocity × pipe cross-section, with the inner diameter taken as the nominal DN. Actual flow limits depend on the real inner diameter of your pipe. Always enter the measured inner diameter in the meter.

# 06 Mechanical installation

Check that the meter is rated for your system (pressure, temperature, gas, pipe size) before you start. Blow out the pipeline before installation so that dirt does not damage the probe or block the pressure ports.

**INCORRECT INSTALLATION**

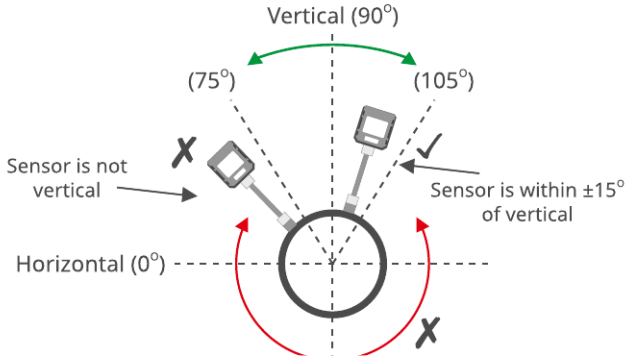
- Incorrect installation can damage the meter or give wrong readings.
- The gas velocity at the measuring point must be at least 5 Nm/s. Below this the reading is zero.

## Step 1 – Choose a horizontal pipe section

Install the meter:

- on a horizontal pipe;
- upright, at 90° ± 15° to the pipe (75° to 105°);
- away from bends, edges, seams, size changes, valves and other obstructions (see step 2);
- on wet (condensing) air: after the first filter or water separator, never directly on the compressor outlet;
- with enough free space above the pipe to insert and remove the probe.

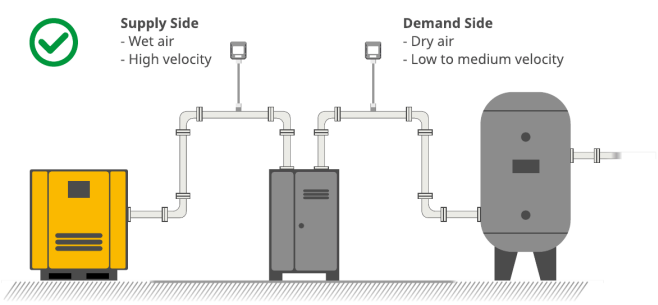
On non-condensing gases the meter may be installed at the compressor outlet, provided the straight-run requirements are met.



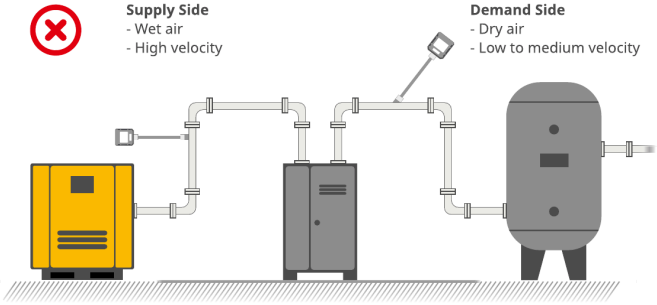

Allowed mounting angle: within ±15° of vertical

**CAUTION**

Installing the meter at an angle, upside down or on a vertical pipe lets condensate collect in the shaft or head. This damages the meter and voids the warranty. The meter is for indoor use. Outdoors, protect it from sun and rain.




Correct: upright on horizontal pipe, after the separator (supply side) and on the demand side

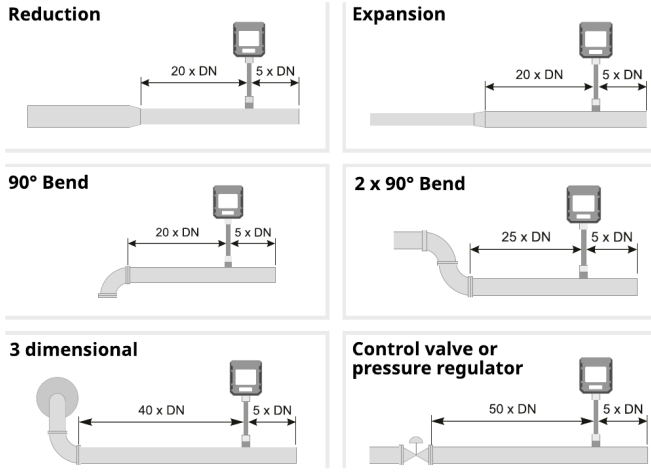


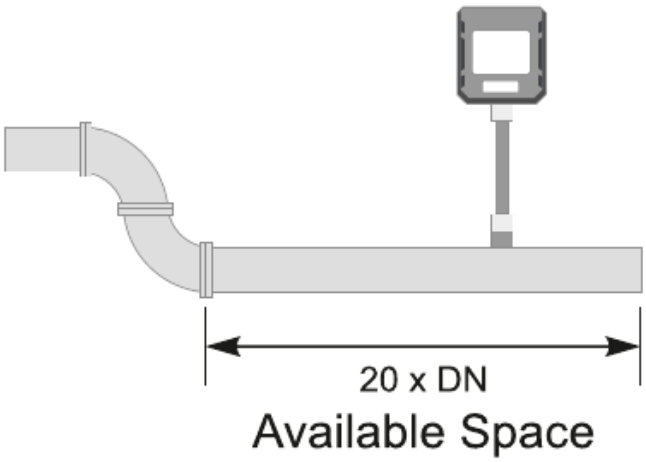

Incorrect: horizontal probe on a vertical pipe, and probe at an angle

## Step 2 – Keep the required straight pipe runs

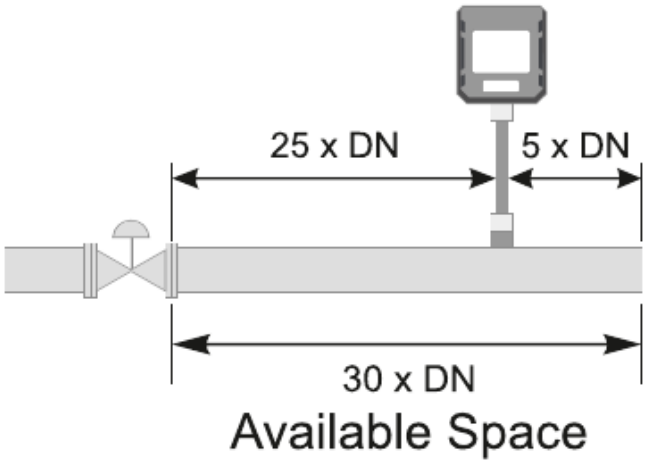
Obstructions disturb the velocity profile and cause turbulence upstream and downstream. To reach the stated accuracy, keep these minimum straight lengths (in multiples of the pipe diameter, DN):

| Upstream disturbance | Inlet | Outlet |
|---|---|---|
| Reduction | 20 × DN | 5 × DN |
| Expansion | 20 × DN | 5 × DN |
| 90° bend or T-piece | 20 × DN | 5 × DN |
| 2 × 90° bends (same plane) | 25 × DN | 5 × DN |
| 2 × 90° bends (3-dimensional) | 40 × DN | 5 × DN |
| Control valve or pressure regulator | 50 × DN | 5 × DN |




Incorrect: after 2 × 90° bends 30 DN is needed (25 + 5), only 20 DN available




Incorrect: after a control valve 50 DN is needed on the inlet side, only 25 DN available

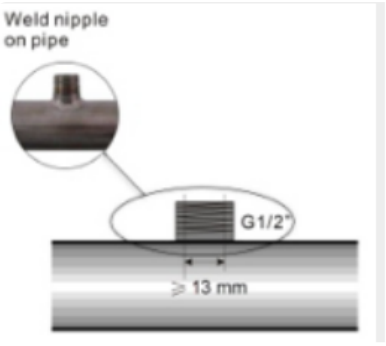
## Worked examples (DN50 pipe, 50 mm / 2")

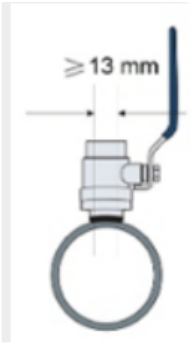
| Situation | Inlet run | Outlet run | Result |
|---|---|---|---|
| **Meter after a single 90° bend** | 20 × 50 mm = 1,000 mm (40") | 5 × 50 mm = 250 mm (10") | Needs 1.25 m of straight pipe |
| **Meter after an S-bend followed by a control valve (valve nearest the meter governs)** | 50 × 50 mm = 2,500 mm (100") | 5 × 50 mm = 250 mm (10") | Needs 2.75 m of straight pipe |
| **1 m straight section between a bend and an expansion to DN80** | 20 × 50 mm = 1,000 mm | 5 × 50 mm = 250 mm | Not suitable: 1.25 m needed, only 1 m available |

## Step 3 – Fit the ball valve

Weld a G ½" nipple to the pipe (or use a suitable tapping saddle) and fit the ball valve supplied. The valve or nozzle must have:

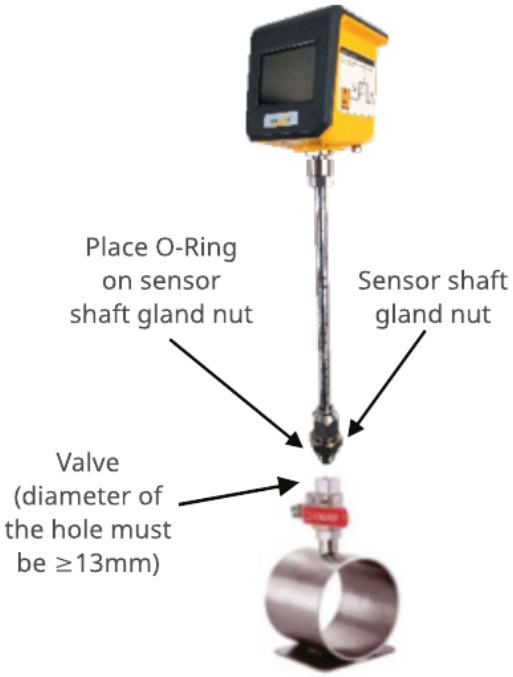
- a G ½" female thread;
- a bore of at least 13 mm through the valve and the pipe wall, otherwise the probe cannot pass.




## Step 4 – Insert the probe

1. Place the O-ring on the shaft gland nut.
2. Screw the meter into the ball valve with the spanner supplied.
3. Open the ball valve slowly.
4. Push the shaft in until the depth scale reads the insertion depth (step 5).
5. Tighten the gland nut to lock the probe in place.




**DANGER**

When inserting or removing under pressure, hold the shaft firmly and keep your body out of line with the probe. Never loosen the gland nut fully while the valve is open.

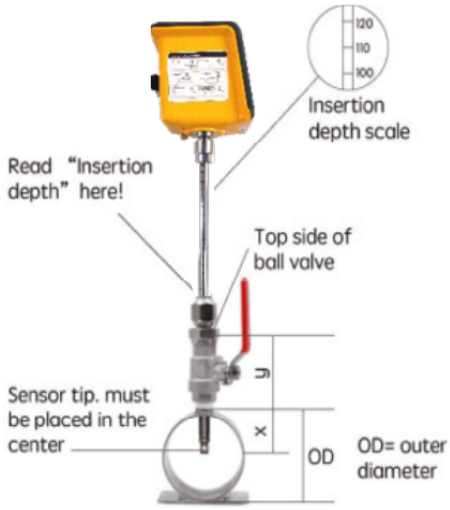
## Step 5 – Set the insertion depth (tip at pipe centre)

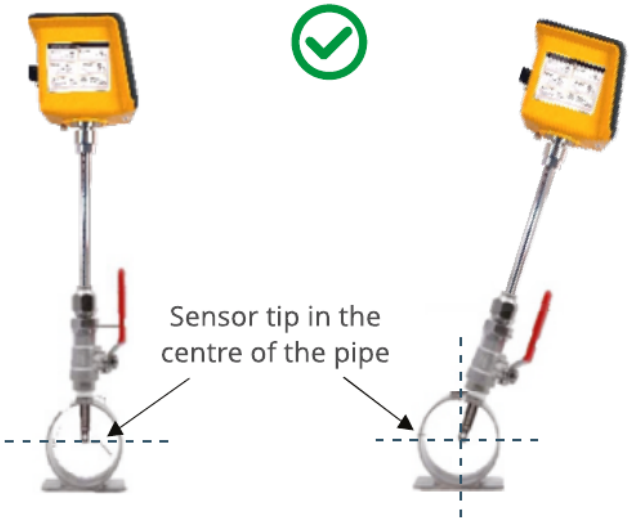
The probe tip must sit on the pipe centre line. Read the insertion depth from the scale on the shaft at the top of the ball valve:

```
Insertion depth = OD / 2 + Y

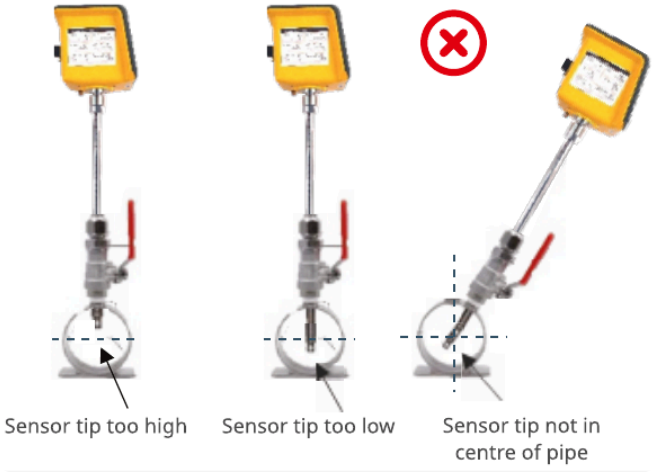
OD = outer diameter of the pipe
Y  = height from pipe surface to top of ball valve
```

**Example:** pipe OD = 100 mm, Y = 87 mm.
Insertion depth = 100 / 2 + 87 = **137 mm**.




Correct: tip on the pipe centre line

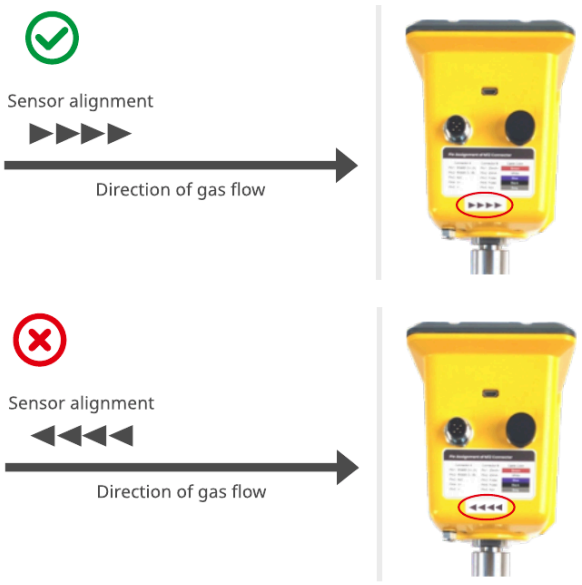



Incorrect: tip too high, too low or off centre

## Step 6 – Align with the flow direction

The meter is not bidirectional. Arrows on the back and underside of the housing show the flow direction. Turn the meter so that the arrows point in the direction of gas flow and the probe is square to the pipe axis (within ±2°), then tighten.

> **NOTE**
> Inaccurate measurement results if the meter is installed against the flow direction.




Top: correct (arrows with the flow). Bottom: incorrect.

# 07 Electrical connection

The meter has two M12 sockets, **A** (power and Modbus) and **B** (analogue and pulse), and a micro USB port for data export and firmware updates.

**CAUTION**

- Switch off the power supply before connecting.
- Tighten M12 plugs by hand only. Force damages the pins.
- Use shielded twisted-pair cable for RS485 and 4–20 mA.




1_ Connector A
2_ Connector B
3_ Micro USB Connection

**Pin assignment (5-pin M12)**

| Pin | Connector A – power and Modbus | Connector B – analogue and pulse |
|---|---|---|
| 1 | RS485 Data + (A) | 4–20 mA + |
| 2 | RS485 Data – (B) | 4–20 mA – |
| 3 | Not used | Pulse |
| 4 | +18 ... 30 VDC | Pulse |
| 5 | 0 V (GND) | Not used |

## Power supply

- Supply the meter through connector A, pins 4 (+) and 5 (0 V). The meter always needs this supply, also when only the analogue output is used.
- Size the supply for 24 W per meter at 24 VDC so that anti-condensation can operate.
- Allow for voltage drop on long cables; the voltage at the meter must stay within 18–30 VDC.

## RS485 Modbus RTU

- Connect Data + and Data – to the corresponding terminals of the PLC, WADL-301 data logger or WASM-604 gateway.
- On a bus with several sensors, give each meter a unique address (1–247). Use the Y-type M12 splitter for daisy-chaining.
- Terminate the bus according to good RS485 practice (120 Ω at both ends of long lines).

### 4–20 mA and pulse outputs

- The 4–20 mA output is a 4-wire, isolated output. Connect pins B1 (+) and B2 (−) to the analogue input.
- Select the measured value and the scaling in Settings > Analog Setting (section 8).
- The pulse output (pins B3 and B4) gives one pulse per set volume of consumption.

> **NOTE**
> Electrical ratings of the pulse output (type, maximum voltage and current) and the 4–20 mA load resistance are not stated in the current documentation. Contact WiseAir support before connecting the pulse output to your counter or PLC.

## 08 Display, menus and configuration

### Using the touch screen

- Touch with a finger. Nails and pens do not work.
- Swipe left or right to change home screen (three pages, shown by dots).
- Scroll up or down to see more menu items.
- Press the back arrow to save and return to the previous screen.
- **Unlock:** press the lock symbol, hold and drag it to the right.
- The screen locks after 60 s (adjustable).

| | |
|---|---|
| Home icon | Return to the home screen |
| Camera icon | Take a screenshot of the current screen |
| Notepad icon | Open data logging |
| Gear icon (top right) | Open Settings |
| USB icon | Safely remove the USB device |

## Menu structure

| Menu | Item | Options / values |
|---|---|---|
| **Home** | Display pages | Normal flow, normal velocity, normal consumption, flow, temperature, pressure |
| **Settings** | Pipe Diameter | Inner diameter of the pipe |
| | Unit Setting | Flow: $Nm^3/h$, $Nm^3/min$, $Nm^3/s$, Nl/min, Nl/s, Ncfm, kg/h, kg/min, kg/s<br>Velocity: Nm/s, Nft/s<br>Consumption: $m^3$, $ft^3$, kg<br>Pressure: Pa, hPa, kPa, MPa, mbar, bar, psi<br>Temperature: °C, °F |
| | Gas Type | Air, argon, butane, carbon dioxide, carbon monoxide, ethane, helium, hydrogen, methane, nitrogen, nitrous oxide, oxygen, propane, sulphur hexafluoride, biogas, natural gas |
| | Logging | Logging, History |
| | ScreenShot | View, export, delete screenshots |
| | Normalization | Reference temperature and pressure (FAD / standard / normal) |
| | RS485 Setting | Baud rate (1200 ... 115200), parity, stop bits, response delay, device address |
| | Analog Setting | 4–20 mA channel, scaling low, scaling high, pulse output, $m^3$ per pulse |
| | System Setting | Screen setting, language setting, system information, system update |
| | Advanced Setting (password) | Velocity offset ratio, velocity filter, consumption (actual / normal), anti-condensation, constant temperature, pressure calibration, cut-off velocity, password |

**NOTE**

Advanced Setting is password protected and is for WiseAir service use. Contact WiseAir support if a change is needed.

## Pipe diameter

Go to Settings > Pipe Diameter and enter the **inner** diameter of the pipe in mm. A wrong diameter gives a proportionally wrong flow reading (flow scales with diameter squared).

## Units

Go to Settings > Unit Setting, select the quantity, select the unit and press the back arrow to save.

## Gas type

The meter is calibrated in air. Go to Settings > Gas Type and select the gas. The meter corrects its readings for the selected gas automatically.

## Normalization (FAD, standard or normal flow)

Go to Settings > Normalization and enter the reference temperature and atmospheric pressure for the flow basis you need (for example, compressor inlet conditions for FAD). Default: 20 °C and 100 kPa. The reference atmospheric pressure can also be written over Modbus (section 9). Change these values only if you understand their effect, and record them in the commissioning report.

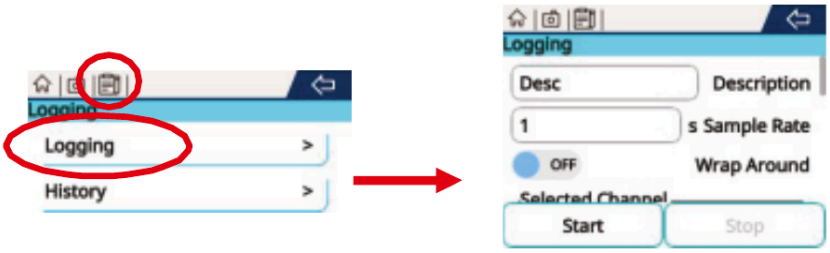
## Analogue and pulse output

1. **Select the channel**
   Settings > Analog Setting > 4-20 mA Channel. Choose flow, velocity, pressure, temperature, normal flow or normal velocity. Only one value can be sent on the analogue output.

2. **Set the scaling**
   Enter the value for 4 mA (Scaling Low) and for 20 mA (Scaling High).

3. **Set the pulse**
   Choose actual or normal consumption for the pulse output and set the volume ($m^3$) per pulse.

## Data logging




**Set up logging** (notepad icon, or Settings > Logging):

1. Enter a descriptive name.
2. Enter the sample rate in seconds.
3. Wrap Around ON overwrites the oldest data when the memory is full; OFF stops logging.
4. Select the channels: flow, velocity, consumption, temperature, pressure, normal flow, normal velocity, normal consumption, density.
5. Check the system date and time.
6. Optionally enter a start and stop date and time.
7. Press Start. The pencil on the notepad icon moves while logging is active.

**Export data:** insert a micro USB device, open History, select the record and press Export. Data is saved as a CSV file.

**Delete data:** open History, select the record and press Delete.

**Screenshots:** press the camera icon on any screen. View, export or delete them in Settings > ScreenShot.

## System settings

- **Screen setting:** rotate the display in 90° steps, set brightness, set the screen lock time or switch the lock off.
- **Language setting:** select the display language (English is standard).
- **System information:** short serial number (the full number is on the label) and hardware and software versions.
- **System update:** firmware updates are rarely needed. WiseAir supplies the file; copy it to a micro USB device, insert it and follow the prompts.

# 09 Modbus RTU communication

**Default RS485 settings**

| Device address | Baud rate | Data / parity / stop | Response delay | Response time | Frame spacing |
|---|---|---|---|---|---|
| 1 | 9600 | 8 / N / 1 | 0 ms | 1 s | 7 characters |

Change the settings on the display (Settings > RS485 Setting) or over Modbus (configuration registers below). After changing communication settings, restart the meter.

**Measured values (holding registers, function 03)**

| Register address | Data type | Length | Value | Unit | Access |
|---|---|---|---|---|---|
| 0 | Float | 4 bytes (2 reg.) | Flow | As set in Unit Setting | Read |
| 2 | Float | 4 bytes (2 reg.) | Velocity | As set in Unit Setting | Read |
| 8 | Float | 4 bytes (2 reg.) | Temperature | °C or °F | Read |
| 10 | Float | 4 bytes (2 reg.) | Pressure | As set in Unit Setting | Read |
| 24 | Unsigned integer | 4 bytes (2 reg.) | Consumption (totaliser) | $m^3$ or $ft^3$ | Read |
| 41 | Float | 4 bytes (2 reg.) | Reference atmospheric pressure | kPa | Read / write |

**Communication configuration**

| Register no. | Protocol address | Length | Function | Default | Access |
|---|---|---|---|---|---|
| **51** | 50 | 2 bytes | Restart device (write 1) | – | Write |
| **52** | 51 | 2 bytes | Device address, 1 ... 247 | 1 | Read / write |
| **53** | 52 | 2 bytes | Baud rate: 12 = 1200, 24 = 2400, 48 = 4800, 96 = 9600, 144 = 14400, 192 = 19200, 384 = 38400, 560 = 56000, 576 = 57600, 1152 = 115200 | 96 (9600) | Read / write |
| **54** | 53 | 2 bytes | Parity: 0 = none, 1 = odd, 2 = even | 0 | Read / write |
| **55** | 54 | 2 bytes | Stop bits: 1 or 2 | 1 | Read / write |
| **56** | 55 | 2 bytes | Response delay, 0 ... 255 ms (1 ms per step) | 0 | Read / write |

Register number = protocol address + 1. Some masters use the register number, others the zero-based protocol address. If values look shifted, try the other addressing convention.

**NOTE**

The float word order (byte swap) is not stated in the source documentation. If floats read incorrectly, swap the two registers in your master or contact WiseAir support.

# 10 Maintenance, cleaning and calibration

## Cleaning

- Clean the probe and screen with a clean, dry cloth.
- For stubborn dirt use only distilled water or isopropyl alcohol.
- Dirt on the probe tip affects calibration. Cleaning may not restore accuracy; recalibrate if in doubt.

**TIP**

Because the WAFS-103 is an insertion meter, you can remove it through the ball valve for cleaning or calibration without shutting the system down.

## Calibration

Each meter is calibrated before delivery; the date is on the calibration certificate. Calibrate the meter **every 2 years**, or more often in contaminated systems. Calibration is not covered by the warranty. A NABL calibration certificate is available as an optional extra. Contact WiseAir support to arrange calibration.

# 11 Troubleshooting

| Symptom | Possible cause | Action |
|---|---|---|
| **Display does not respond** | Screen locked; dirty screen; touched with nail or pen | Drag the lock symbol to the right; clean the screen; use a fingertip and vary the pressure |
| **Not all menu items visible** | List longer than the screen | Scroll up or down (scroll bar on the right) |
| **Display in the wrong language** | Language changed | Settings (gear) > System Setting (second item from the bottom) > Language Setting (second item from the top) > select English > back arrow |
| **Flow reads zero** | Velocity below 5 Nm/s; probe reversed; wrong pipe diameter | Check the actual velocity; check the flow arrows; check the inner diameter setting |
| **Flow too high or too low** | Wrong inner diameter, gas type or unit; tip not on the centre line; insufficient straight run; normalization changed | Correct the settings; reset insertion depth; move the meter; restore 20 °C / 100 kPa or the agreed reference |
| **Unstable readings** | Turbulence near bends or valves; condensate in the probe; meter not upright | Move to a location with the required straight run; install after a separator; mount within ±15° of vertical |
| **No Modbus communication** | Wrong address, baud rate or parity; Data +/− swapped; no termination | Check the RS485 settings; swap A/B; check wiring and termination |
| **4–20 mA value wrong** | Wrong channel or scaling | Check Settings > Analog Setting |
| **Readings drift over time** | Contaminated probe; calibration overdue | Clean the probe; send for calibration |

If the problem remains, contact WiseAir support (details on the back cover). WiseAir can support diagnosis remotely.

# 12 Warranty and service

WiseAir Technologies India LLP provides a **12-month warranty** from the date of delivery against defects in material and workmanship, under the stated operating conditions. Report faults immediately and within the warranty period.

During the warranty period WiseAir will repair or replace the defective meter free of charge for parts and repair labour. Other costs, such as removal and reinstallation, site visits and transport, are charged. Warranty repairs do not extend the warranty period.

## Excluded from warranty

- Improper use or failure to follow this manual
- Unsuitable accessories
- External influences such as vibration, transport damage, excess heat or moisture, or condensate entering the meter
- Calibration

## Warranty is void if

- the meter is opened without written instruction in this manual;
- repairs or modifications are made by third parties or unauthorised persons;
- the serial number is changed, damaged or removed.

## Installation and commissioning support

The WAFS-103 is plug and play. WiseAir supports installation and commissioning remotely, and can adjust configuration with the WiseAir Service Software. Contact WiseAir support (details on the back cover).

# 13 Commissioning report

| METER AND SITE | |
|---|---|
| Model (WAFS-103-A / -B) and serial number | |
| Customer, site and measuring point | |
| Installed by / installation date | |
| Calibration valid until / warranty valid until | |

| CONFIGURATION | |
|---|---|
| Pipe inner diameter (mm) / gas type | |
| Flow reference (FAD, standard, normal), reference temperature and pressure | |
| Modbus address / baud rate / parity | |
| 4–20 mA channel and scaling / pulse value ($m^3$ per pulse) | |

| No. | Check | Yes | N/A | No | Comments |
|---|---|---|---|---|---|
| 1 | Installed on a horizontal pipe, upright within ±15° | | | | |
| 2 | Required straight runs available (inlet / outlet) | | | | |
| 3 | On wet air: installed after filter or water separator | | | | |
| 4 | Probe tip on pipe centre line (insertion depth set) | | | | |
| 5 | Flow arrows in direction of gas flow | | | | |
| 6 | Wiring checked; supply 18–30 VDC at the meter | | | | |
| 7 | Settings checked: diameter, units, gas, reference | | | | |
| 8 | Modbus / analogue output checked at receiver | | | | |
| 9 | Flow, velocity, consumption, pressure and temperature shown on display | | | | |

WiseAir representative _____ Customer representative _____ Date _____

WISE AIR 4.0
MEASURE TO MANAGE

# Need help with your WAFS-103?

Our product specialists support installation, commissioning, configuration and calibration — remotely or on site.


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> When you contact support, please keep the sensor serial number, firmware version and a photo of the installation ready.


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Specifications are subject to change without notice.