WISE Air 4.0

MEASURE TO MANAGE

User Manual for **WADS - 207 / 208
Dew Point Sensor**

Compressed Air
Energy Saving Solutions

Smart Measurement Technology That You Can Trust

For More Info
SCAN HERE

About Us

At WiseAir Technologies, our mission is to empower industries with innovative and advanced measurement solutions for compressed air and gases. With over 20 years of expertise in the field of compressed air management, we have developed smart, reliable, and state-of-the-art products that are both accurate and easy to use. Our focus is on incorporating cutting-edge technologies like M2M communication and the Industrial Internet of Things (IIoT) to bring increased automation, improved communication, and self-monitoring to industrial processes.

Our WA range of smart IIoT sensors can be easily integrated into existing manufacturing and energy management software to enhance data collection, exchange, and analysis for improved productivity and efficiency.

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 and 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

Simplify Your Compressed Air Management With Our Smart Technology

Compressed Air Systems are Dynamic and Highly In-Efficient. Hence they Require Continuous Monitoring for Sustained Benefits. With Our WiseAir 4.0 Smart Sensors and M2M / AI Softwares Your Compressed Air System is Measured, Analysed and Improved Over Time.

With Our Seamless and Detailed Analytical Reports You Can Keep Track Of Your Compressed Air Systems Efficiency with Minimal Human Intervention.

Our Services

We Offer Free Assessment Services to Identify the HotSpots For Improvements and Develop Road Maps for Sustainable Results. Our Product Specialists Can Also Offer You Customised Plans for Monitoring the Key Performance Factors Of Your Compressed Air System.

Connect with Our Expert Product Specialists to Learn How Your Factory Can Begin to Realize Energy and Cost Savings with Our Advanced Solutions.

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Understand The True Costs Of Compressed Air

In a Compressor's Life Cycle More than 80 % of its Operating Costs is Spent Towards its Energy. Hence Monitoring and Managing Compressors at their Peak Energy Efficiency will give Significant Energy Savings.
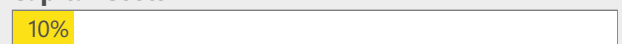
Our Smart Sensors Can Provide Vital Informations Like Flow, Power, Dew Point and Pressure. When Our Sensors are Networked with Our AI Software Programs, All the Measured Datas are Analysed and Reported To You With Suggested Action Plans in Real Time.

Manage Your Compressed Air System Efficiently and Effortlessly With Our WiseAir Smart Sensors and AI Softwares.

Energy Costs
80%

Capital Costs
10%

Maintenance Costs
10%

Index

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General Information

Please read this user manual in full and carefully observe the notes and instructions before and during installation, operation and maintenance. The manufacturer cannot be held liable for any damage which occurs as a result of non-observance or noncompliance with this user manual.

Should the device be tampered with in any manner other than a procedure which is described and specified in this manual, the warranty is cancelled and the manufacturer is exempt from liability. The device is designed exclusively for the described application.

This user manual should be read carefully by the technician / qualified personnel and the end user. Once you install, use or maintain this product, you accept that you have read, understood and complied with this manual. This manual should be kept with the Dew Point Sensor and made available to relevant personnel as needed. WiseAir Endeavours to make changes to the content of this Manual, and tries to ensure Correctness and well stated, but is not responsible for Omissions or errors and the consequences caused thereby.

● **Compressed Air Safety**

  ● Any contact with quickly escaping air or bursting parts of the compressed air system can lead to serious injuries or even death.

  ● Do not exceed the maximum permitted pressure

  ● Only use pressure tight installation material.

  ● Avoid getting hit by escaping air or bursting parts.

  ● The system must be pressure-less during maintenance work.

● **Installing the Dew Point Sensor, Calibration & Maintenance**

  ● The product must be installed properly and frequently calibrated, otherwise it may lead to the wrong measurement values, which can lead to wrong results.

  ● Always Observe the Direction of Flow When installing the Sensor. The

  ● Direction is Indicated on the Housing.

  ● Do Not Exceed the Maximum Operation Temperature at the Sensors Tip.

  ● Avoid Condensation on the Sensor Element as this will affect the accuracy enormously.

  ● Please observe national regulations before/during installation and operation.

  ● Do not disassemble the product.

  ● Always use a spanner to mount the product properly

● **Electrical Safety**

  ● Any contact with energized parts of the product, may lead to an electrical shock which can lead to serious injuries or even death. Consider all regulations for electrical installations.

  ● The system must be disconnected from any power supply during maintenance work.

  ● Any electrical work on the system is only allowed by authorised qualified personal.

● **Using the Dew Point Sensor**

  ● Do not use this product in explosive areas.

  ● Do not exceed the permitted operating parameters.

  ● Any operation exceeding these parameters can lead to malfunctions and may lead to damage on the instrument or the system.

  ● Do not exceed or go below the permitted storage and operation temperature and pressure.

  ● This product should be maintained and calibrated frequently, at least every years.

● **Storage and Transportation**

  ● Make sure that the transportation temperature of the sensor is between -10°C to 60 °C.

  ● Storage temperature of the sensor is between -10 °C to 50 °C and the humidity is <90%, no condensation.

  ● Avoid direct UV and solar radiation during storage.

About WADS 207 / 208 Dew Point Sensors

- **Importance of Dew Point :**
  - When it comes to monitoring compressed air systems, nothing offers a better payback than a dew point sensor. Once you have moisture in your system, everything becomes a problem. If you have ever had this occur, you'll know the problem occurred days before you discovered it and it took even longer to dry out after the issue was fixed.
  - Most people don't think of dew point sensors as providing efficiency, but wet compressed air will do irreparable damage to components, create reliability issues throughout your entire plant and allow bacteria, rust and corrosion to build up in your system. Moisture issues are extremely difficult to rectify and component failures will go on for years.
  - If you have a system running a desiccant dryer or with a specified purity requirement, then you are already demonstrating your dew point is a critical component of your system and therefore should be monitored continuously.

- **Indicators on Refrigerant Dryers don't Measure Dew Point**
  - The indicator on your refrigerant dryer is exactly that, an indicator, it is not measuring the dew point entering your plant. It is only measuring the temperature of the refrigerant gas. Any number of issues before and after your dryer can lead to the dew point deteriorating and they will not be shown on the dryer indicator.
  - Compared to your compressed air system, dew point sensors are cheap, easy to install and have low maintenance requirements. They are the most cost effective sensor purchase you are ever likely to make.

- **Benefits**
  - Improve system reliability
  - Reduce product contamination risks
  - Reduce system maintenance
  - Reduce operating and energy costs
  - Reduce the risk of rust and corrosion build up
  - Improve dryer reliability
  - Improve filter life and performance
  - Reduce the risk of bacteria, fungus and yeast build up
  - Alerts you to changes in dryer performance before moisture appears in your plant
  - Easy to install and low maintenance

- **Multiple Gas Options**
  - All dew point sensors are suitable for compressed air and the following inert gases: Oxygen (02), Nitrogen (N), Hydrogen (H), Carbon Monoxide (CO), Carbon Dioxide (C02), Argon (Ar) and Helium (He).

- **Calibration Requirements**
  - Dew point sensors require calibration every 2 years (provided the sensor is not exposed to relative humidity above 85%).

- **Permanent and Temporary Solutions**
  - All dew point sensors are available for temporary or permanent installations.

- **Key Features of Dew Point Sensors**
  - **All WiseAir dew point sensors come with:**
    - Fast response time
    - Accuracy +/-2°C IP65 rated
    - Strong contamination resistance
    - Two output as standard: Modbus (Digital) & 4-20mA (Analogue)
  - **If using Modus output - up to four output signals are possible:**
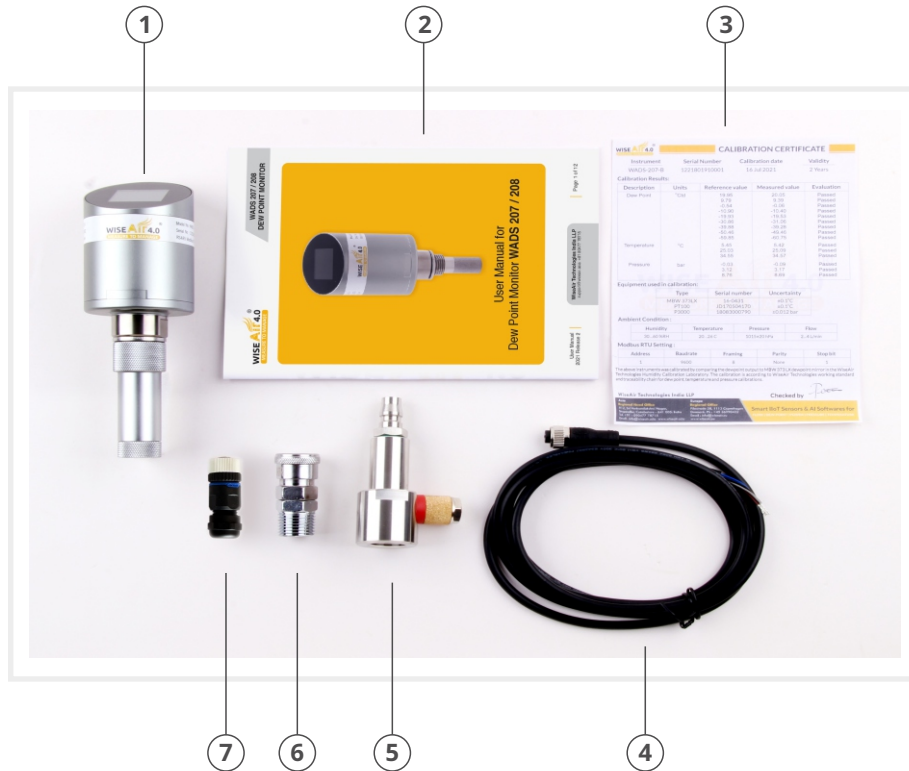   - Pressure Dew Point (PDP)
    - Relative Humidity
    - Temperature
    - Optional integrated pressure transducer (excluding Mini Dew Point sensors)
  - **If using 4-20mA output, only 1 output signal is possible:**
    - Pressure Dew Point (PDP)
  - Measurement Chamber as standard
  - Optional 2m Cable

## What's in the Box ?

● **Each Dew Point Sensor Unit comes with :**

1. WADS 207/208 (Whatever Ordered)
2. User Guide
3. Calibration Certificate
4. M12 Connector with 2 Metre Cable
5. Measuring Chamber
6. Quick Release Coupler (QRC)
7. M12 Connector

● **Optional Accessories**

   ● The following accessories are available for WADS Dew Point Sensor. Talk to your local dealer for pricing and other accessories.

Y-type M12 connector for connecting multiple sensors simultaneously via RS485
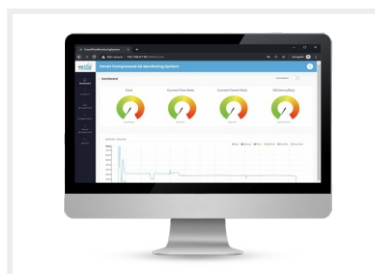
Smart Data Acquisition and Monitoring Software

Analogue Display Unit

Product Specification

	WADS 207	WADS 208
Measuring Range		
Dew Point	-60 ...+60⁰ Ctd	-80 ...+20⁰ Ctd
Temperature	-40...+100⁰ C	
Pressure	0...17 bar (a)	
Dew Point Accuracy (Air & Nitrogen)		
	-60...+60°C	+/- 2° Ctd
	-80...+20°C	+/- 3° Ctd
Temperature Accuracy	(Higher Accuracy Can be Provided on Request)	
	+ 0...+50°C	+/- 3°C (Standard)
	-40°C...+ 0°C & +50°C....+100°C	+/- 5°C (Standard)
Pressure Accuracy		
	@ 23° C (Standard)	+/- 3% Full Scale
	Pressure Temperature Dependence	+/- 0.01 bar / 10°C
Response Time	Dew Point Sensor Reference : 63% (90%), 20⁰ C, 1bar(gauge), 4L/min	
	-50 > + 20° Ctd	20 Secs - 40 Secs
	+20 > - 50° Ctd	1 Min - 3 Mins
	Pressure Sensor	< 1 Sec
Outputs		
Signals	Analog (4..20mA (4Wire, Isolated)/Pluse Output Digital : RS485 Modbus / RTU	
Parameters	Atm.Dew point, Humidity, Temperature, Pressure, Dew point	
Power		
Input	220V AC, 10W	
Working Environment		
Operating Temperature	-30....+70°C	
Storage Temperature	-40....+80°C	
Relative Humidity	0...95 % RH	
Sampling Gas Flow Rate	> 1 L/min	
Pressure Rating	0....17 bar (a)	
Others		
Connectors	M12 (5 Pin)	
Sensor Protection	Stainless Steel Sinter Filter 30-45 Micron	
EMC	According to IEC 61326-1	

Installation - Mechanical

These installation instructions apply to all dew point sensors (WADS 207 / 208). Before installing the sensor, make sure it is rated for your system (refer to the Specifications section above).

WARNING!

- Incorrect installation can damage the sensor or cause it to work incorrectly.

- **Step 1 - Find a Suitable Section of Horizontal Pipe :**

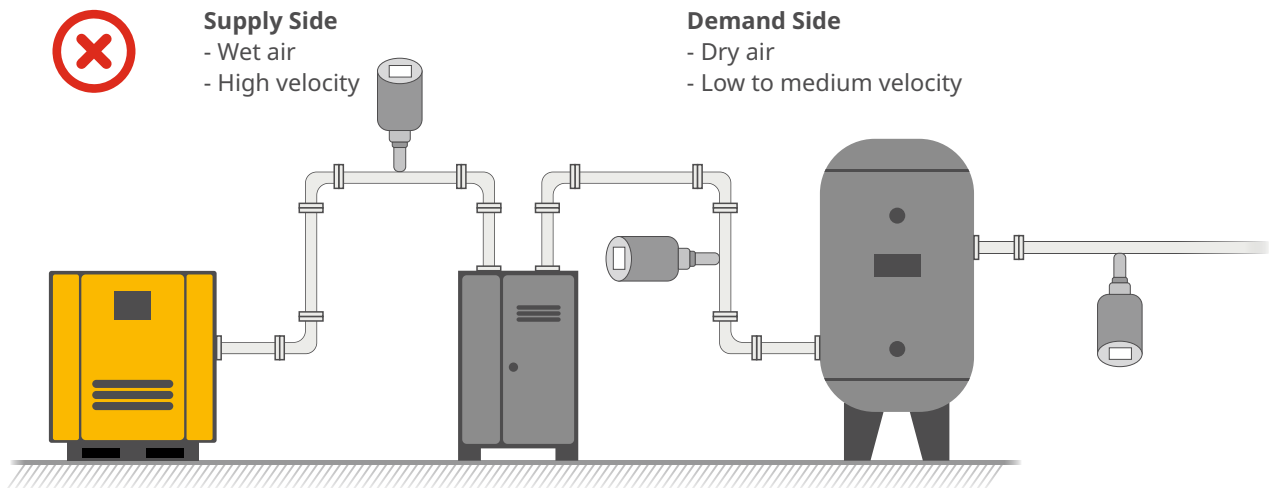 The Sensor Must be Installed :

  - Vertically, at 90° to the pipe, in dry gas (gas humidity should be less than 80% relative humidity (RH)). as shown in the diagrams below. Make sure the insertion location has enough room above the pipe to install the sensor. If installing the sensor outdoor, protection from sun and rain is necessary.

- **Correct Installation**

Supply Side
- Wet air
- High velocity

Demand Side
- Dry air
- Low to medium velocity
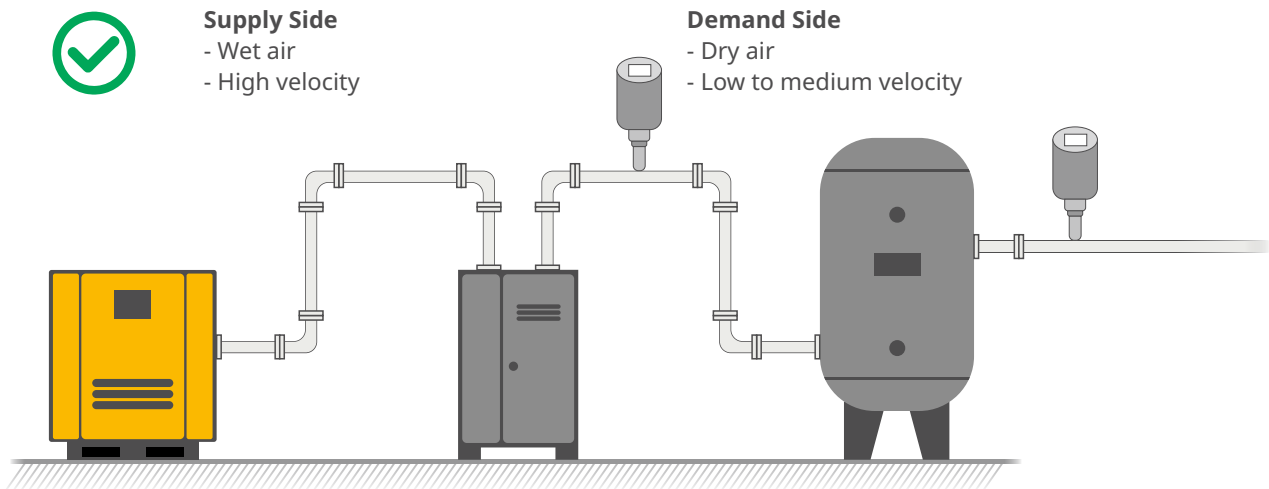
- **Incorrect Installation**
  - Do NOT install the sensor before a dryer or in gases with a relative humidity above 80%.
  - Do NOT install the sensor upside down, horizontally or at an angle, as shown below.
 - Do NOT let water get into the tip of the sensor.

Supply Side
- Wet air
- High velocity

Demand Side
- Dry air
- Low to medium velocity

- **Step 2 — Install the Socket and Ball Valve**
  - To install the sensor, you need a connection point to the pipe, eg a valve or a nozzle or nipple. The inner thread must be G 1/4".
  - Use of a valve is optional - You do not need to use a valve to install the sensor. However, using a valve will make removing the sensor easier (eg when you need to remove the sensor for calibration).
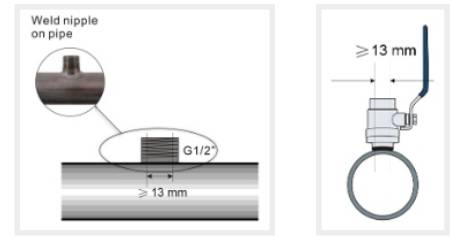

- **Step 3 — Attach Dew Point Sensor To Pipe**
  - The dew point sensor's measurement chamber comes with a quick release coupler. This can be removed and the chamber connected directly to a valve with 1/4" male BSP fitting, if required.
  - Connect the sensor to the measurement chamber. Screw the measurement chamber into the pipe connection point (eg valve, nipple or nozzle).
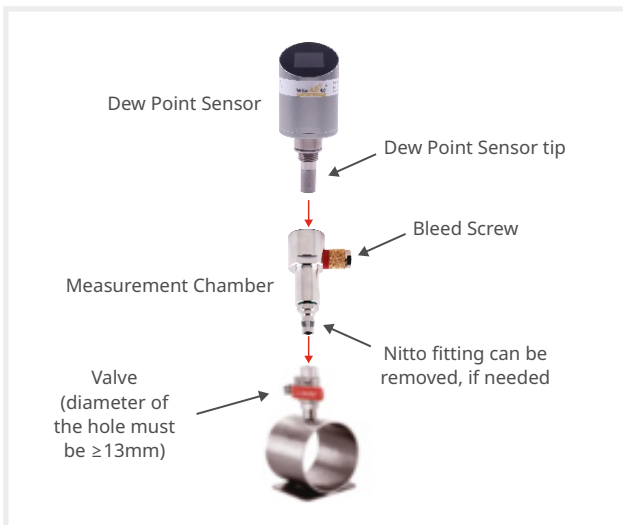


- **Step 4 - Set the Pilot Flow**
  - **Option 1 - Bleed Gas to Air**
    - On the Measurement Chamber : Close the Bleed Screw Completely
    - Open to Allow a Very Small Flow Of Gas to the Atmosphere
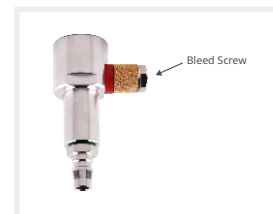

- **Option 2 - Zero Loss Chamber**
  - On the measurement chamber: Remove the bleed screw and fi2ing Install
  - a push fit 1/4llto 6mm
  - Connect a 6 mm tube between the measurement chamber and a second valve downstream of the sensor

Direction of gas flow
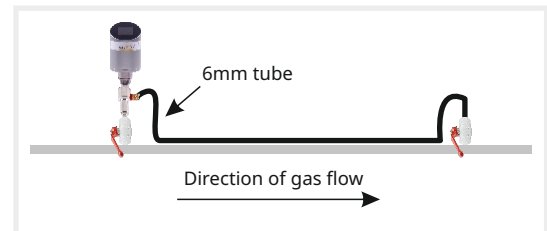
Installation - Electrical (Wiring)

- The Dew Point sensor is equipped with two M12 connector plugs and Cables are connected to the sensor through the M12 connector plugs.
- Do not screw the M12 connector using force. Otherwise, it may damage the connection pins.

- **Connector A (Modbus)**
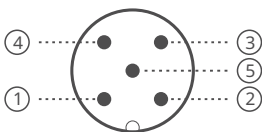
Pin 1_ Modbus RTU Data +
Pin 2_ Modbus RTU Data -
Pin 3_ Not Used
Pin 4_ +18~30v DC
Pin 5_ 0v DC

- **Connector B (Analogue)**
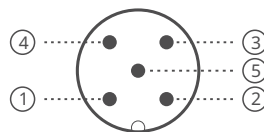
Pin 1_ 4~20mA +
Pin 2_ 4~20mA -
Pin 3_ Pulse
Pin 4_ Pulse
Pin 5_ Not Used

1_ Connector A
2_ Connector B

Communication Settings

● **Default Modbus Settings**

All dew point sensors use the following default Modbus settings. Settings can be changed to suit system requirements on request

Modbus Register						
Holding Register Address	Address	Data Type	Byte Length	Description	Unit	Read / Write
1	0	Float	4	Temperature	^{0}C, ^{0}F	Read
3	2	Float	4	Relative Humidity	%RH	Read
5	4	Float	4	Pressure Dew Point	^{0}Ctd, ^{0}Ftd	Read

Default Modbus RTU (RS 485) Settings					
Address	Baud Rate	Frame / Parity / Stop Bit	Response Time	Response Delay	Frame Spacing
0	9600	8 / N / 1	1 Sec	0 ms	7 Character

Warranty

WiseAir Technologies provides a 12-month warranty for all Flow Meters. The warranty covers material and workmanship under the stated operating conditions from the date of delivery. Please report any issues immediately and within the warranty time.

If faults occur during the warranty period WiseAir Technologies will repair or replace the defective unit, without charge for repair labor and material costs but there is a charge for other services such as labor to remove or reinstall the instrument, transport and Warranty repairs do not extend the period warranty.

The following damage is excluded from this warranty:

● Improper use and non-adherence to the user manual.

● Use of unsuitable accessories. External influences (e.g. damage caused by vibration, damage during transportation, excess heat or moisture).

The warranty is cancelled when one of the following situations occurs:

● The user opens the measurement instrument without a direct request written in this manual. Repairs or modifications are undertaken by third parties or unauthorized persons. The serial number has been changed, damaged or removed.

● Other claims, especially damage occurring on the outside of the instrument (eg dents, marks), are not included unless responsibility is legally binding.

Calibration

The sensor is calibrated before delivery. The calibration date is printed on the certificate which is shipped with the sensor.

Flow meters require calibration to remain accurate. The frequency of calibration depends greatly on the level of contamination within your system. By using insertion style flow meters wherever possible, you can install and remove them without the need for shutting the system down, virtually eliminating any lost production time caused by periodic maintenance.

We recommend you calibrate the sensor every 2 years. The calibration is excluded from the product warranty. For more information, please contact **WiseAir Technologies.**

Need Help ?

Contact your local dealer. Alternatively, contact **WiseAir Technologies**

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Europe : **+45 36 99 04 22**

● **Email Us**
Asia   : **info@wiseair.asia**
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Technical Support

- **My Sensor Isn't Reading Correctly**
  - **If your sensor is not reading the correct values, follow these steps.**

    1. Make sure the sensor is suitable for your system. Refer to the "Specifications" section

    2. Make sure the sensor is calibrated. Sensors should be calibrated every 2 years. Contact your local dealer or WiseAir Technologies for calibration.

    3. Make sure the sensor is installed correctly. Refer to "Installation — Mechanical" section.
       - The sensor should be installed at 90° to the pipe.
  - **Typical installation Errors include:**
    - Installing sensor upside down or at an angle
    - Installing sensor in wet air
    - Air is not reaching the sensor tip (sensor tip is not far enough into pipe).

    4. Make sure the sensor is wired correctly. Refer to "Installation — Electrical (Wiring)" for more information.

    5. Check Modbus Settings. Refer to "Communication Settings "section for more information.

    6. Check dryer is functioning correctly

    7. Check condensate drains are functioning correctly

    8. Is your associated equipment compatible with the dew point sensor?

- If you are still having problems, contact your local dealer or **WiseAir Technologies.**

Commissioning Report

● **About the Sensor**

Part Number	WADS 207		WADS 208	
Serial Number				
Installed by		Installed on (date)		
Calibration (Valid till)		Warrenty (Valid till)		

● **About the Compressed Air System**

Dryer Type	Refrigerant	Desiccant	Membrane	Other
Dew Point Sensor Reading				

● **Installation**

Step	Task	Yes	NA	No	Comments	Sign
1	Dew point sensor installed in correct location and orientation?					
2	Base Valve installed					
3	Dew point sensor and measurement chamber attached to pipe?					
4	Pilot flow set					
5	Electrical Wiring checked					
6	Modbus setting checked					
7	Dryer and condensate drains working correctly?					

Initials of WISEAIR Representative   **Initials of Customer**

Understand Compressed Air System Dynamics
with Our Advanced Measurement Solutions

Measure - Manage - Save - Sustain

Our Network

Copenhegan

California

Dubai

India

Kuala Lumpur

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