

User Manual

Dew Point Sensor

Model: DEE



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Notices and Warnings

Notices

Please **read all of this manual** before you install, operate or maintain this product. Pay attention to notes, warnings and instructions. The manufacturer cannot be held liable for any damage which occurs as a result of noncompliance with this manual.

Do not tamper with device. 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 product is designed exclusively for the described application. Use of this product in conditions not specified in this manual or, contrary to the instructions provided by the manufacturer, is considered improper handling / use of the product and will void your warranty. The manufacturer will not be held liable for any damages resulting from improper use of the product.

This manual should be read carefully by relevant personnel and the end user. This manual should be kept with the product and be made available as needed. **Once you install or use the product, you accept that you have read, understood and complied with this manual.**

CAA Sensors endeavours to make the content of this manual correct but is not responsible for omissions or errors and the consequences caused. In case of any doubts or questions regarding this manual or the product, please contact CAA Sensors.



Warnings

Ignoring the warnings can lead to serious injury and/or cause damage!

When handling, operating or carrying out maintenance on this product, personnel must employ safe working practices and observe all local health & safety requirements and regulations.

Improper operation or maintenance of this product could be dangerous and result in an accident causing damage to machinery or injury or death.

The manufacturer cannot anticipate every possible circumstance which may represent a potential hazard. The warnings in this manual cover the most common potential hazards and are therefore not all-inclusive. If the user employs an operating procedure, an item of equipment or a method of working which is not specifically recommended by the manufacturer they must ensure that the product will not be damaged or made unsafe and that there is no risk to persons or property.

NEVER CHANGE ORIGINAL COMPONENTS WITH ALTERNATIVES.



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 rated installation materials and parts.
- Avoid getting hit by escaping air or bursting parts.
- The system must be pressure-less during maintenance work.



Electrical Safety

Any contact with energised parts of the product, may lead to an electrical shock which can lead to serious injuries or even death. The user shall take all measures necessary to protect against electrical shock.

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 personnel.

Storage and transportation

- Make sure that the transportation temperature of the sensor is between -10°C to 60°C (14°F to 140°F).
- Please make sure that the storage temperature of the sensor is between -10°C to 50°C (14°F to 122°F) and the humidity is <90%, no condensation. Avoid direct UV and solar radiation during storage.

Cleaning

If you need to clean the sensor it is recommended to use a clean, dry cloth. For stubborn marks, use distilled water or isopropyl alcohol only.

Please note: contamination on the sensor tip will affect calibration and accuracy of the sensor. Removal of the contamination may not fix the issue.

Disposal

Electronic devices are recyclable material and do not belong in the household waste. The product, accessories and its packing material must be disposed according to local statutory requirements.

Introduction



About Dew Point Sensors

Intended use

CAA Sensors dew point sensors are suitable for use in manufacturing, industrial and base building environments providing the sensor's specifications are met. This includes:

- Sensor is used in inert gases, e.g. air, oxygen, nitrogen, carbon dioxide
- Pressure dew point is between:
 - -60°C to +60°C (-76°F to 140°F) or
 - -110°C to +20°C (-166°F to +68°F)
- Gas pressure is between:
 - 0 to 50 bar (725 psi) if the sensor doesn't have integrated pressure
 - 0 to 17 bar (247 psi) if the sensor has integrated pressure
- Gas temperature is between: -40°C to +100°C (-40°F to +212°F)
- Power supply is between: 16 to 30 vDC

Refer to the *Specifications* section (next page) for full requirements.

Our dew point sensors measure pressure dew point, gas temperature, relative humidity and pressure (optional).

About dew point sensors

Dew Point Sensors are the simplest way to monitor dryer performance and detect moisture issues before they can cause a problem.

Moisture in gas systems can clog pipes, break machinery, cause contamination (e.g. rust, mildew, bacteria) or cause freezing.


Dew point sensors are cheap, easy to install and have low maintenance requirements.

Benefits of monitoring dew point

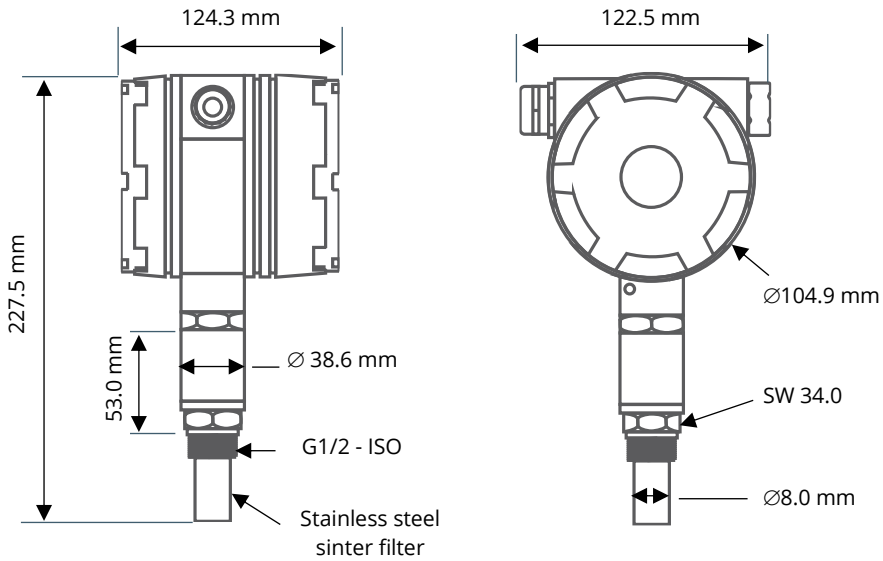
- Improve system reliability
- Reduce product contamination risks
- Reduce system maintenance
- Reduce operating and energy costs
- Reduce the risk of rust and corrosion build up
- Improve dryer reliability
- Improve filter life and performance
- Reduce the risk of bacteria, fungus and yeast build up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

Specifications – E Series

	DEEx1	DEEx2
	-60°C to +60°C	-110°C to +20°C
Technology	Polymer	Alumina-Oxide
System	Compressed air and gas systems up to 4 Mpa (600psi)	
Dryer Type	Refrigerant, Desiccant, Drum or Membrane dryers	
Gases	Air, Argon, Carbon Dioxide, Carbon Monoxide, Helium, Hydrogen, Nitrogen, Oxygen	
Accuracy	Dew Point Accuracy	
	• +20 to -60°C	±2%
	• -60 to -100°C	±3%
	Temperature Accuracy	
	• 0 to + 50°C	±0.3°C
	• -40 to 0°C	±0.5°C
	• +50 to +100°C	±0.5°C
	Pressure: ±0.3% FS (at 23°C)	
Pressure changes with temperature: ±0.01 bar / 10°C		
The accuracy of the sensor is affected by on-site conditions. Contaminants such as oil, high humidity or other impurities can affect the calibration and accuracy of the sensor.		
Minimum gas flow	> 1 L/min	
Measurement Ranges		
Dew Point Measurement	-60°C to +60°C -76°F to 140°F	-110°C to +20°C -166°F to +68°F
Pressure Measurement	0 to 50 bar (725 psi) or 0 to 17 bar (247 psi) if using the integrated pressure sensor	
Gas Temperature	-40 to +100 °C -40 to +212°F	
Dew Point Response Time	-50 to +20 °Ctd 20 sec [40 sec] +20 to -50 °Ctd 1 min [3 min]	

	DEEx1 -60°C to +60°C	DEEx2 -110°C to +20°C
Reference Conditions	63% [90%], 20 °C, 1bar(a), 4L/min	
Output	Outputs Analogue: 4 to 20mA Digital: RS485 Modbus / RTU	
Modbus Output Signals	Pressure Dew Point (PDP), Relative Humidity (RH), Temperature Optional integrated pressure transducer	
Alarm Relay output	Normally open, 32VDC / 500 mA	
Power Supply	Power 16 to 30 VDC Max 4.5W @ 24 V	
4-20 mA Current Output <ul style="list-style-type: none"> Resolution Temperature Drift Load 	<ul style="list-style-type: none"> 0.002 mA 0.01% of span/°C Max 500 ohm 	
Electrical Connection	Terminal Strip	
EMC	According to IEC 61326-1	
	Other Information	
Inbuilt Display	2.0" IPS ultra-wide viewing angle LCD screen with capacitive touch	
Process Connection	G1/2" thread	
Measurement Chamber	1/2" Quick coupling (Nitto type) with Adjustable Bleed Screw	
Ambient Temperature	-30°C to +70°C -22°F to +158°F	
Gas Relative Humidity	0 to 95% RH	
Casing	Stainless Steel SUS304 + Powder-coated Aluminium	
IP Rating	IP67	
ATEX Rating 	Ex II 2G Ex db IIC T6 Gb Ex II 2D Ex tb IIIC T80°C Db	
Calibration Frequency	Every 2 years <i>provided the sensor is not exposed to relative humidity above 85%</i>	
Warranty	12 months	

Dew Point Sensor Dimensions (mm)



Pressure Dew Point or Atmospheric Dew Point

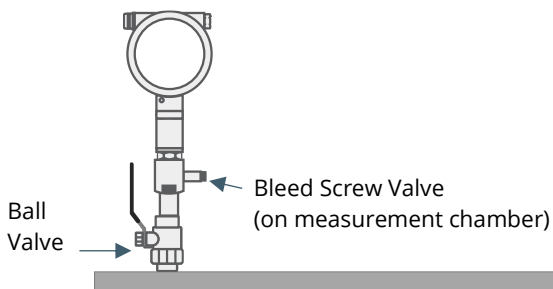
It is important to know if you are measuring Pressure Dew Point (PDP) or Atmospheric Dew Point as they will give different results. This is because dew point is affected by pressure. For a given relative humidity, the higher the gas pressure, the higher the dew point due to the increased volume ratio of gas to moisture. Decreasing gas pressure increases the gas volume thereby reducing the dew point.

Pressure Dew Point (PDP) is the dew point inside the pipe where the gas is under pressure (i.e. the pressure is higher than atmospheric pressure).

Atmospheric Dew Point is the dew point in non-pressured gases, i.e. the dew point of ambient conditions.

Pressure Dew Point

Sensor is measuring dew point inside the pipe



Atmospheric Dew Point

Sensor is measuring dew point in ambient conditions, i.e. the sensor is outside the pipe



If the dew point sensor is installed in the pipe and you want to measure:

- **Pressure Dew Point** – open the ball valve and open the bleed screw slightly. This will draw gas up to the sensor tip whilst maintaining the pipe pressure.
- **Atmospheric Dew Point** – Install a flow control valve on the inlet side of the chamber and open slightly. Open the bleed screw fully. This will bring the pressure in the measurement chamber to atmospheric pressure.

Dew Point Sensor Pack

Each dew point sensor pack comes with:

- ✓ Dew Point sensor
- ✓ Measurement Chamber
- ✓ Calibration Certificate and User Manual



Measurement Chamber



Protective Cap / Transport Cap

The dew point sensor comes with a protective cap / transport cap. This cap is designed to protect the sensor during transport and storage. Please remove this cap before installing the sensor.



Protective cap
still on sensor



Protective cap
removed

Installation



Installation Overview

CAA Sensors recommends that our dew point sensors are installed via a measurement chamber.

Mechanical Installation

Step 1 – Find a suitable section of pipe

- The sensor must be installed vertically, on dry side of the system
- 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, at an angle or in wet gas

Step 2 – Install connection point in pipe, e.g. a ball valve, nozzle or nipple

Step 3 – Remove protective cap from sensor

Step 4 – Attach Dew Point Sensor to connection point

Step 5 – Set the gas bleed

Electrical Installation

Step 6 – Wire the sensor (see '*Installation – Electrical*')

Configure Sensor

Step 7 – Check the sensor settings

Step 8 (optional) – Connect the sensor to your SCADA or energy management system

Tools and Equipment needed for installation

(not included with Dew Point Sensor Pack)



Wrench /
Spanner



Thread Tape /
Sealant



Ball Valve
(optional)



Hot Tap Kit
(optional)

Installation – Mechanical

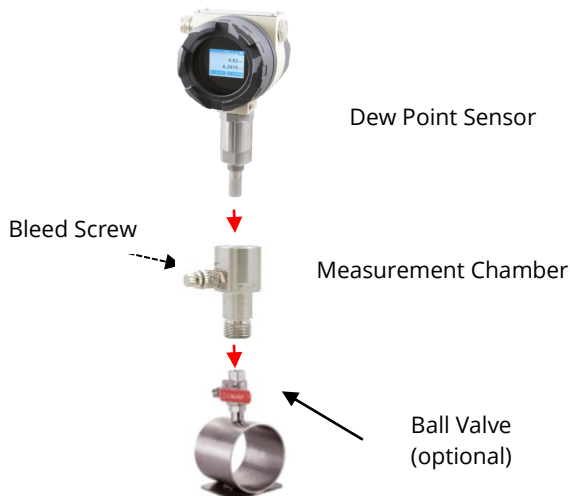


WARNING! Incorrect installation can damage the sensor or cause it to work incorrectly.



Notes

- **Before installing the sensor, make sure it is rated for your system** (refer to the “Specifications” section).
 - Use of the product outside specified ranges or operating parameters can lead to malfunctions and may damage the product or system.
- Do not use this product in explosive environments.
- Always use a spanner / wrench to install the product.
- Only use pressure rated materials and parts when installing and maintaining the product.
- Do not disassemble the product.
- Please follow local and national regulations before/during installation and operation.
- The product must be installed properly and calibrated regularly, otherwise it may lead to inaccurate measurement values.



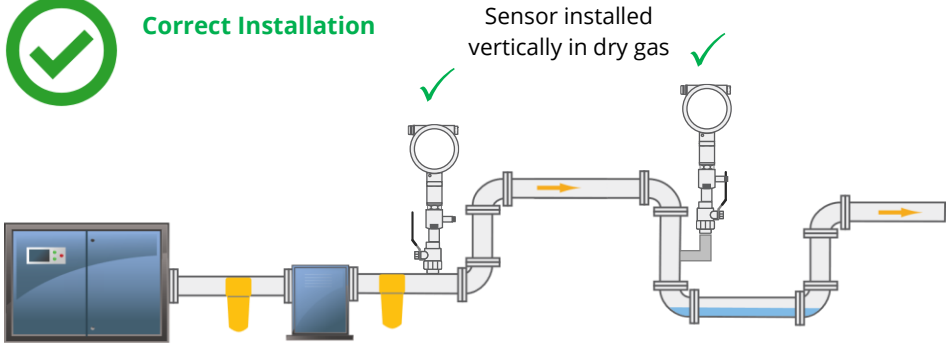
Step 1 – Find a suitable section of pipe

The sensor **must be installed vertically in dry gas** (gas humidity should be less than 80% relative humidity (RH)).

Make sure the sensor location has enough room above the pipe to install the sensor.



Correct Installation

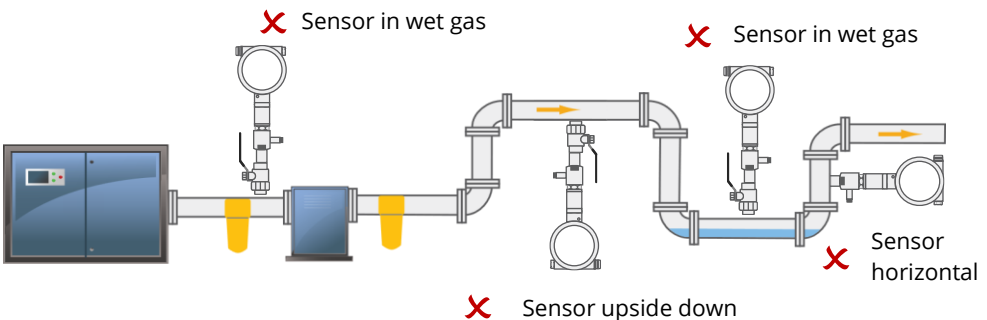


Incorrect Installation

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 condensate reach the tip of the sensor



Step 2 – Install connection point in pipe

To install the sensor, you need a connection point to the pipe, e.g. a ball valve or a nozzle or nipple. The thread must be G 1/2".

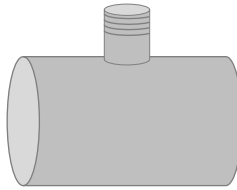
Use of a ball valve is optional - You do not need to use a valve to install the sensor. However, using a valve will make removing the sensor easier (e.g. when you need to remove the sensor for calibration).

If installing a ball valve, you can use a hot tap drill and clamp to create a connection point on pressurized or unpressurized pipes. See the CAA Sensors website for information on hot tap drills and clamps.



Ball Valve

OR



Welded nipple on pipe

Step 3 – Remove Protective Cap

Remove (unscrew) the protective cap from the dew point sensor.



Protective cap
still on sensor



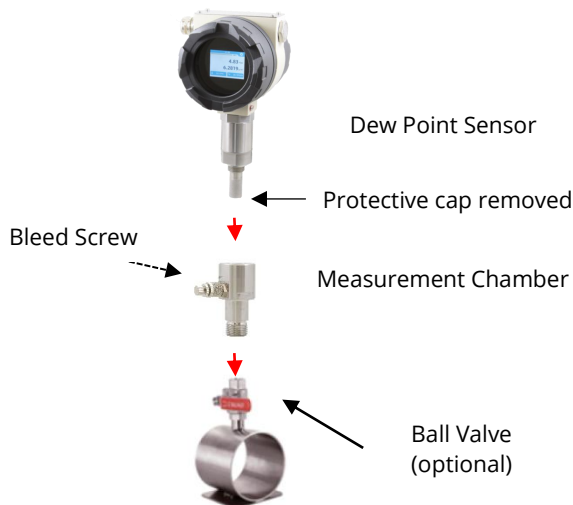
Protective cap
removed



Insert sensor into
measurement chamber

Step 4 – Attach dew point sensor to connection point

- Screw the measurement chamber into the connection point (e.g. valve, nipple or nozzle) and tighten with a spanner
 - You can remove the nitro fitting from the measurement chamber and replace with a 1/4" male BSP fitting, if required
 - CAA Sensors recommends that our dew point sensors are installed via a measurement chamber
 - A reducing bush may be needed if connecting the measurement chamber to a large ball valve or nipple
 - Fix measurement chamber firmly to prevent loosening or shaking
 - Use thread tap or sealant to prevent gas escaping
 - If needed, you can use the mounting bracket to secure the measurement chamber to a wall or block
- Screw the sensor into the measurement chamber
 - Make sure the protective cap is removed from the dew point sensor
- Open ball valve



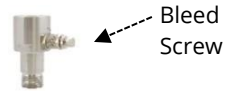
Step 5 – Set the Gas Bleed

To ensure a flow of gas past the sensor tip, either allow a small amount of gas to escape to atmosphere (option 1 below) or connect a zero loss chamber (option 2 below).

Option 1 – Bleed gas to air

On the measurement chamber:

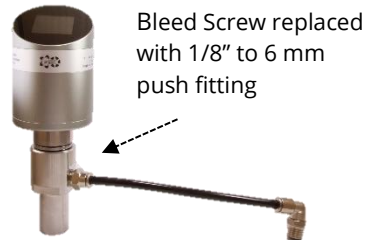
- Close the bleed screw completely.
- Then slowly open the bleed screw to allow a small flow of gas to escape to the atmosphere.



Option 2 – Zero Loss Chamber

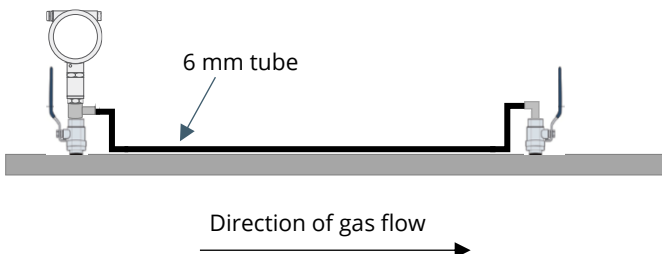
The zero loss chamber will prevent gas escaping to atmosphere and can improve system efficiency.

- Remove the bleed screw and fitting from measurement chamber
- Install a 1/8" to 6mm push fit into measurement chamber
- Connect a 6 mm tube between the measurement chamber and a second connection point downstream of the sensor.



Tip - use cable ties to secure the 6 mm tube to the pipe.

Zero Loss Chamber set up



Installation – Electrical

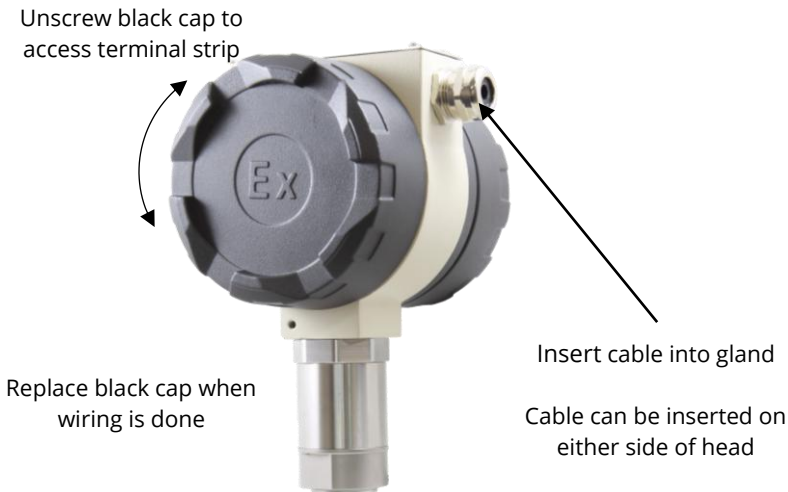


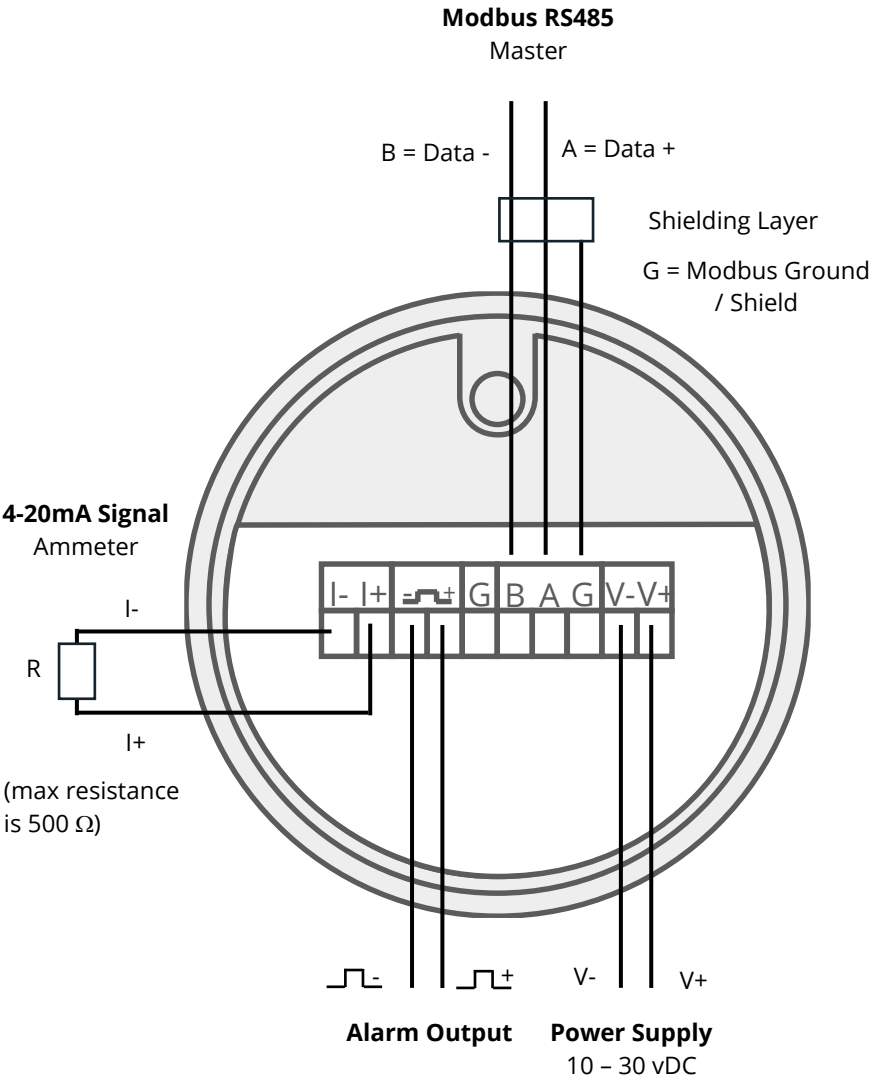
WARNING! Incorrect wiring can damage the sensor or cause it to work incorrectly.

Notes:

- Follow all local and national safety requirements and regulations for electrical installations.
- **The system must be disconnected from any power supply during installation and maintenance work.**
- Any electrical work on the system is only allowed by authorised and qualified personnel.
- CAA Sensors recommends the use of bootlace terminals

Step 5 - Wire the sensor for 24vDC power & communication





4-20mA Scaling

4 mA = -60

20 mA = +60

Signals = Dew Point, Relative Humidity, Temperature or Pressure

Alarm Relay Output

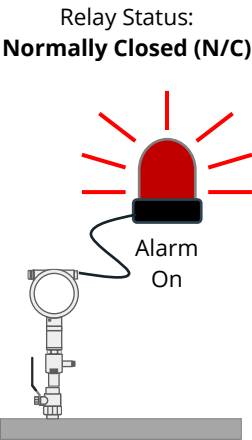
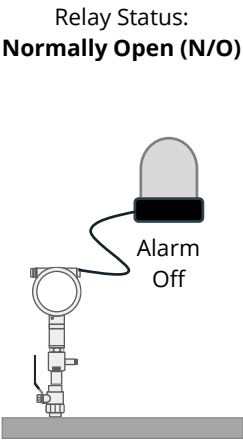
The Dew Point Sensor has a relay output which can monitor dew point, pressure, etc. For example, when the dew point reaches a set value, the sensor will issue an alarm.

Alarm relay specifications:

- Maximum: 32 VDC / 500 mA
- Power switch status: Normally open (N/O)

Relay States

	Relay Status	Alarm Status
Dew Point Sensor powered off	Normally open (N/O)	Alarm Off
Dew Point Sensor powered on and the alarm valve is not reached.	Normally open (N/O)	Alarm Off
Dew Point Sensor powered on and the alarm valve is reached.	Normally closed (N/C)	Alarm Activated



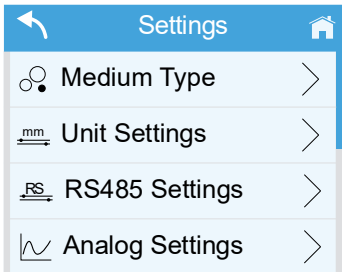
Configure the Sensor

Step 6 - Set sensor settings



You should check / adjust the following settings:

- gas type
- units of measure
- communication settings (4-20mA and/or Modbus)
- Alarm settings (if using the alarm relay)



Scroll up and down to see more options

Tap to select that menu

Communication Settings

Default Modbus Settings

Default Modbus RTU (RS485) Settings					
Address	Baud Rate	Frame / Parity / Stop Bit	Response Time	Response Delay	Frame Spacing
1	9600	8 / N / 1	1 Sec	0 ms	7 Characters

Modbus Registers

Settings can be changed to suit system requirements. Note: These settings will take effect after writing a "1" to the holding register address 50. Then Modbus master must change communication settings accordingly in order to communicate with the slave

Holding register definition

- Modbus read command: 0x03
- Modbus write command: 0x06 for single register, 0x10 for multiple register
- Coil registers write command: 0x05

Process Data Format

Supports two data types: IEEE 754 float data and unsigned int data

Byte Order

Data is little end, and least significant bit transmitted first

32bit: CD AB

64bit: GH EF CD AB

Registers					
Holding Register Address	Data Type	Byte Length	Data / Description	Unit	Read / Write
0	FLOAT_L	4	Temperature	°C or °F	R/W
2	FLOAT_L	4	Relative Humidity	%RH	R
3	FLOAT_L	4	Pressure Dew Point	°Ctd or °Ftd	R/W
4	FLOAT_L	4	Atm. Dewpoint	°Ctd or °Ftd	R
8	FLOAT_L	4	Mixing Ratio	g/kg	R
10	FLOAT_L	4	Absolute Humidity	mg/m ³	R
12	FLOAT_L	4	Absolute Humidity	g/ m ³	R
14	FLOAT_L	4	Moisture (Weight)	PPMw	R
16	FLOAT_L	4	Moisture (Volume)	PPMv	R
18	FLOAT_L	4	Enthalpy	kJ/kg	R
20	FLOAT_L	4	Line Pressure (abs)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R/W
22	FLOAT_L	4	Water Activity (aw)		R
24	FLOAT_L	4	Gas Density	kg/m ³	R
26	FLOAT_L	4	Pressure (Normalize to 20 C)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R
28	FLOAT_L	4	Moisture (Volume) (Normalize to 20 C)	PPMv	R
30	FLOAT_L	4	Gas Density (Normalize to 20 C)	kg/m ³	R
38	FLOAT_L	4	Moisture (Volume) (Normalize to	PPMv	R
40	FLOAT_L	4	Atm. Pressure (Default: 1.01325 bar or 1013.25 hPa)	Pa, hPa, kPa, MPa, mbar, bar, PSI	R/W
42	FLOAT_L	4	Gauge Pressure (= Addr 20 (Line Pressure) - Addr 40 (Atm. Pressure))	Pa, hPa, kPa, MPa, mbar, bar, PSI	R
50	UNSIGNED INT	2	Restart device Write “1” to restart device		W

Registers					
Holding Register Address	Data Type	Byte Length	Data / Description	Unit	Read / Write
51	UNSIGNED INT	2	Device address	Range = 1-247 Default = 1	R/W
52	UNSIGNED INT	2	Baud Rate (bps)	12 = 1200 24 = 2400 48 = 4800 96 = 9600 (Default) 144 = 14400 192 = 19200 384 = 38400 560 = 56000 576 = 57600 1152 = 115200	R/W
53	UNSIGNED INT	2	Parity	0 = None (Default) 1 = Odd 2 = Even	R/W
54	UNSIGNED INT	2	Stop Bit	1 = 1 bit (Default) 2 = 2 bit	R/W
55	UNSIGNED INT	2	Response Time Out (milliseconds)	Range = 0 to 255 ms in 1 ms/step Default = 0 ms	R/W

Using the Display



Operating the Sensor



WARNING! Make sure the sensor is installed and wired correctly before powering up the sensor. Only use 24vDC to power the sensor.

Turning On

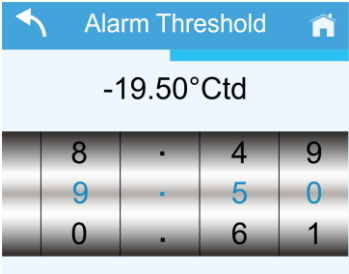
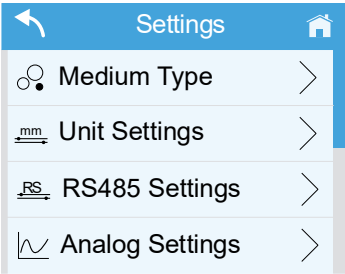
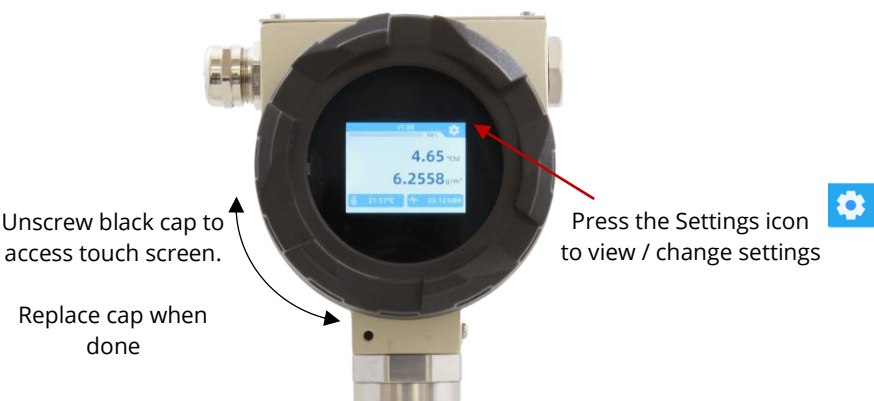
Connect the dew point sensor to 24vDC power. The sensor will start powering up automatically. There is no on/off switch on the sensor.

On powering up:

- The CAA Sensors logo will appear on the screen.
- After a few seconds, you will see dew point sensor home screen. The dew point sensor is now ready to configure (see next page).




Using the Display



Scroll up and down to see more options

Tap to select that menu

Press the arrow  to save your selection and go back to the previous menu

Press the Home icon  to go back to the home screen

Scroll up and down to see more numbers

Scroll left and right to see more numbers

Menu Options

Menu	Sub Menus	Options / Comments		
Medium Type	-	Air	Helium (He)	
		Argon (Ar)	Hydrogen (H2)	
		Carbon dioxide (CO2)	Nitrogen (N2)	
		Carbon monoxide (CO)	Oxygen (O2)	
			Sulfur Hexa (SF6)	
	Note: The dew point sensor is calibrated in air. If you select another gas type, the sensor will automatically adjust its readings to match the gas selected. If you require calibration in real gas, contact CAA Sensors or your local distributor			
Unit Settings	Dew Point 1	°Ctd mg/m ³ g/m ³	g/kg kg/kg	PPM(w) PPM(v) °Ctd.Atm
	Dew Point 1	°Ctd mg/m ³ g/m ³	g/kg kg/kg	PPM(w) PPM(v) °Ctd.Atm
	Temperature Unit	°C	°F	
	Pressure (Optional)	Bar psi		
RS485 Settings		Options	Default Settings	
	Device Address	1 to 247	1	
	Baud Rate	1200 2400 4800 9600 14400 19200 38400 56000	9600	

Menu	Sub Menus	Options / Comments	
		57600 115200	
	Parity	None Odd Even	None
	Stop Bits	1 2	1
	Response Delay	0 to 999 ms	0
Analog output	4-20mA Channel	Options	Default Settings
		Pressure Dew Point Humidity Temperature Pressure Abs. Humidity (g/m ³) Abs. Humidity (mg/m ³) Mixing Ratio (k/kg) Moisture Weight (ppmw) Moisture volume (ppmv) Enthalpy (kJ/kg) Atmos. Dew Point	Pressure Dew Point
	4-20mA Scaling Low	±0 to ±9999999.99	DEEx1 = -60 DEE2 = -110
	4-20mA Scaling High	±0 to ±9999999.99	DEEx1 = +60 DEE2 = +20
Alarm Settings	Note: the dew point sensor must be connected to an external alarm.		
	Alarm Channel	Pressure Dew Point Humidity Temperature	

Menu	Sub Menus	Options / Comments
		Pressure Abs. Humidity (g/m ³) Abs. Humidity (mg/m ³) Mixing Ratio (k/kg) Moisture Weight (ppmw) Moisture volume (ppmv) Enthalpy (kJ/kg)
	Alarm Type	Low High
	Alarm Threshold	Set the value/number you want the alarm to trigger at
	Alarm Hysteresis	Set the value / number you want the alarm to stop. This will usually be a few points above or below the alarm threshold
	Example: you want the alarm to trigger when the pressure dew point goes above 0°C. Set: <ul style="list-style-type: none"> • Alarm Channel to Pressure Dew Point • Alarm Type to High • Alarm Threshold to +0°C • Alarm Hysteresis to -1°C 	
System Settings	Brightness	View / change screen brightness
	Screen Timeout	View / change timing for screen lock from 15 seconds to 10 minutes
	Language	Change language – English or Chinese
	System information	<ul style="list-style-type: none"> • Power Up Times: Number of times the sensor has been disconnected and reconnected to power • Sensor Information: Serial Number, hardware version and software version

Menu	Sub Menus	Options / Comments
		<ul style="list-style-type: none">• Display Information: Serial Number, hardware version and software version
Advanced Settings		<p>These settings are password protected. They should not be changed as they will affect the dew point sensors readings and accuracy. Advanced settings let you change:</p> <ul style="list-style-type: none">• Dew Point Filter Grade• Pressure Setting• Dew Point Offset• Change Password

Trouble Shooting

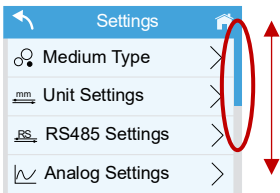


Trouble Shooting

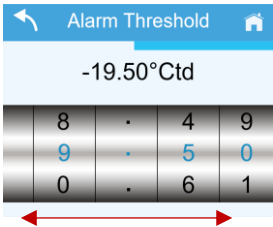
Problem	Possible Causes	Suggested Action
Readings are different than expected	Only the bottom part of the protective cap has been removed	Remove (unscrew) the whole protective cap from the dew point sensor
	Sensor installed incorrectly, e.g. upside down, in wet air	Check installation
	Gas is not reaching the sensor tip. <ul style="list-style-type: none"> Measurement Chamber not used. 	Install measurement chamber and open bleed valve slightly. This will ensure that gas reaches the sensor tip
	Gas is not reaching the sensor tip. <ul style="list-style-type: none"> Ball Valve is closed or Gas system is turned off. 	Open ball valve. Check gas system is turned on
	Gas is not reaching the sensor tip. <ul style="list-style-type: none"> Bleed screw is closed. 	Open bleed valve slightly on the measurement chamber
	Too much gas is reaching the sensor tip. <ul style="list-style-type: none"> Bleed screw open too far. 	Tighten bleed valve on the measurement chamber so that only a small amount of gas is escaping
	Sensor is wired incorrectly	Check Wiring
	Sensor communication set up incorrectly	Check 4-20mA settings and/or Modbus settings
	Dryers, filters, condensate drains are not working correctly	Service equipment
	Equipment failed (e.g. dryer failure) thus allowing too much water vapour, oil or particles to enter the system	Sensor may be damaged. Contact CAA Sensors

Problem	Possible Causes	Suggested Action
	Sensor due for calibration	Calibrate sensor. CAA Sensors can help with calibration
Readings don't change or readings stuck on a certain number	Sensor damaged	Contact CAA Sensors
	Incorrect sensor for your system	Check that the sensor's specifications are suitable for your system.
Air is escaping from the bleed screw on the measurement chamber	-	This is normal operation.
		If you don't want gas to escape from the bleed screw, use a 'Zero Loss Chamber'
Alarm Relay not working	Sensor is wired incorrectly	Check Wiring
	Alarm settings are wrong	Check alarm settings
The touch screen doesn't work	Protective cap not removed	Unscrew black cap
	Dirty screen	Clean the screen
	You are using hard objects to operate the display, e.g. fingernails, pens	Use the fleshy part of your finger to touch the screen. The touch screen does not work if you use fingernails or pens.

I can't see all menu items On some menus, you will need to scroll up and down (or left and right) to see all items.




Slide **up** or **down** to see more options

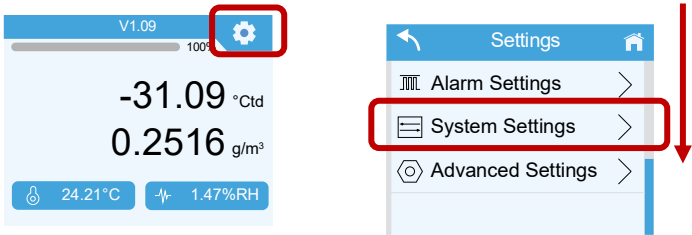



Slide **left** and **right** to see more options

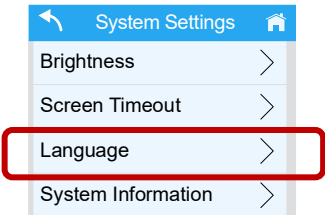
Problem	Possible Causes	Suggested Action
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The screen is in the wrong language

- Step 1 – Select the Settings icon 
- Step 2 – Scroll to the bottom of the page and select the **2nd last menu**



- Step 3 – Scroll to the bottom of the page and select the **2nd last menu**
- Step 4 – Select desired language
- Step 5 - Press the arrow button  to save your selection and return to the previous screen



Factory Settings

The default settings / factory settings are shown below. You can change these settings using the display.

Setting	Default Value / comments	
Gas Type	Air	
Unit Setting	Dew Point Units	°C
	Temperature Units	°C
	Pressure Units	Bar
RS485 (Modbus) Settings	Baud Rate	9600
	Parity	None
	Stop Bits	1
	Response Delay	0
	Device Address	1
Analog Settings	4-20mA Channel	Pressure Dew Point (PDP)
	4-20mA Scaling Low (4)	-60 for DEEx1 -110 for DEEx2
	4-20mA Scaling High (20)	+60 for DEEx1 +20 for DEEx2

Warranty

CAA Sensors provides a 12-month warranty for all sensors. The warranty covers materials and workmanship under the stated operating conditions from the date of delivery. Please report any findings immediately and within the warranty time.

If faults occur during the warranty period CAA Sensors will repair or replace the defective unit, without charge for repair labour and material costs but there is a charge for other services such as labour to remove or reinstall the instrument, transport and packing. Warranty repairs do not extend the period of 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 unauthorised persons.
- The serial number has been changed, damaged or removed.

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

Calibration

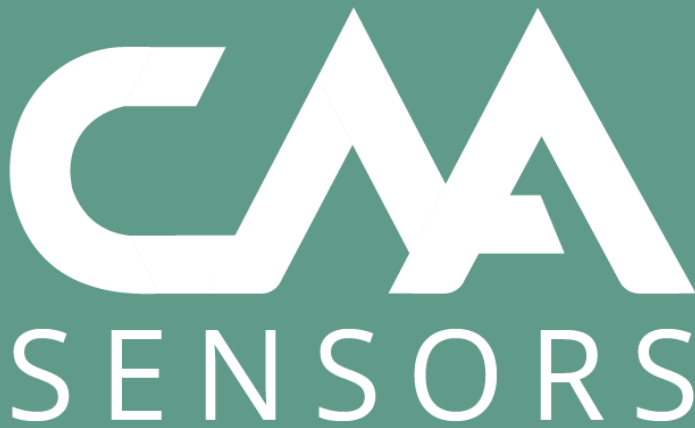
The sensor is calibrated before delivery. The calibration date is printed on the certificate which is shipped with the sensor.

Dew Point Sensors require calibration to remain accurate. The frequency of calibration depends greatly on the level of contamination within your system.

We recommend you calibrate the sensor every 2 years (provided the sensor is not exposed to contaminants or relative humidity above 85%). Calibration is excluded from the product warranty.

For more information, contact CAA Sensors:

- Phone: +61 494095632
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