DEW POINT SENSORS

Safeguard your system

Guard your equipment and production process

Maintaining the dew point of your air or gas system will prolong the lifetime of your equipment and reduce maintenance costs. For dew points related to production processes, guarding the dew point is critical for the end product and key in preventing costly production losses. Permanent monitoring enables you to detect and prevent problems quickly, and may provide visibility that a change in dew point is capacity or maintenance related.

Measuring dew point with VPInstruments

VPInstruments' dew point sensors are designed for ease of use, incorporating all the features needed to make installation and operation as simple as possible. Our solutions cover all dew point monitoring applications for industrial gases and compressed air dryers (refrigerant and desiccant). The calibrated sensors can be instantly incorporated into VPVision or your own management system.

Application examples:

> Monitoring compressed air quality of refrigerant and desiccant type air dryers
> Point-of-use dew point measurement
> Permanent measurement
> Guard critical processes e.g. in the semi-conductor, paint, pharmaceutical, food & beverage, and automotive industries
> Monitor demand air at machine/process level

VP Dew Point Sensor vs. Dew Point Sensor – Extreme Dry Air

Both VPInstruments dew point sensors have a large measurement range. The VP Dew Point Sensor is the smart dew point sensor with multiple outputs, alarm LED, and built-in autocalibration. The Dew Point Sensor-Extreme Dry Air is recommended for measuring dew points as low as -100 ^{o}C | -148 °F.

	VP DEW POINT SENSOR	DEW POINT SENSOR – EXTREME DRY AIR
Measurement range	-70..60 ^{o}C | -94..140 °F	-100..20 ^{o}C | -148..68 °F
Analog output	x	x
RS485 (Modbus RTU) output	x	
Alarm LED	x	
Autocalibration	x	
Sampling block (optional)	x	x
Remote display (optional)	x	x

Sampling blocks

Protect your dew point sensor from fouling and failure by using a sampling block, e.g. for protection against a high process temperature, against water spikes, and for ease of servicing. Moreover, sampling blocks are manufactured from a single, machined stainless steel block, reducing the number of pipe joints, internal volume and surface area. As a result, the sampling system has a faster response and higher integrity.

VPInstruments sampling blocks can be fitted with a needle valve or silencer, depending on the model, to regulate the optimum gas flow for the sensor. We offer all the accessories in a complete kit.

Monitoring dew point permanently prevents problems in real-time

VP Dew Point Sensor

The VP Dew Point Sensor is the complete dew point sensor for all your measurement applications. The sensor is robust and smart with its autocalibration functionality. With both 4..20 mA and RS485 (Modbus RTU) outputs, you can connect the sensor to VPVision or other management systems.

Built-in alarm function

Prevent dryer failure, water carry over or production losses: set an alarm and make it visible in your management system. With the unique, programmable alarm LED on the VP Dew Point Sensor itself, your alarm is visible directly in the work place.

Failure proof

The sensor fully withstands getting wet, so the transmitter performs exceptionally well in applications that occasionally experience process water spikes, such as pipeline condensation during a system failure or start-up. The sensor is also highly resistant to particulate contamination, oil vapor and most chemicals, and is insensitive to the flow rate.

Analog and digital interface

Thanks to the RS485 (Modbus RTU) output, multiple parameters can be read out, such as dew point and alarms. The 4..20 mA output can be connected along with the RS485 (Modbus RTU) output.

Thin film polymer technology

The typical recalibration interval is two years. This long-term high performance is achieved with state-of-the-art polymer technology. Thanks to the built-in offset calibration algorithm, performance at low dew points is optimized.

Upper electrode
Thin film polymer
Lower electrode
Glass substrate
PT-100
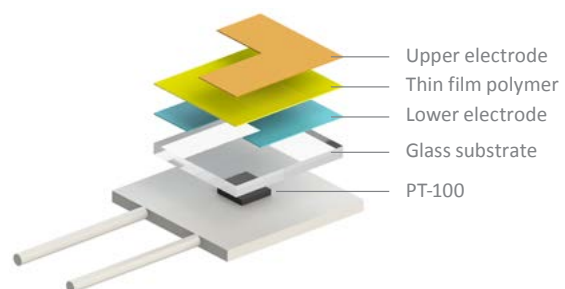
Specifications: VP Dew Point Sensor

MEASUREMENT PERFORMANCE	
Sensor	Thin film polymer
Sensor protection	Stainless steel sintered filter
Calibration interval	Recommended calibration interval to confirm the specified accuracy of 2 years
Sample flow rate	No effect on measurement accuracy, only on response time

RESPONSE TIME 63% [90%] AT 20 °C	68 °F GASTEMPERATURE AND 1 BAR (14.5 PSI) PRESSURE	
-60 → -20 °C Td (-76 → -4 °F Td)	5 s [15 s]
-20 → -60 °C Td (-4 → -76 °F Td)	45 s [10 min]

DEW POINT TEMPERATURE	
Measurement range (typical)	-70..60 °C	-94..140 °F
Accuracy in air or N_2	±2 °C	±3.6 °F	±68 °F of reading
Temperature (°C) > 12 bar	Accuracy ±4 °C	±7.2 °F of reading

WATER CONCENTRATION BY VOLUME (PPM)	
Accuracy at 20°C	68 °F, 1 bar pressure	1 ppm + 20% of reading

INPUTS AND OUTPUTS	
Analog output (scalable)	4..20 mA
Resolution for current output	±0.002 mA
Accuracy for current output at 20 °C (68 °F)	±0.05 mA
Typical temperature dependence	0.005% of span / °C
LED	For dew point level alarm and transmitter diagnostics
Digital output	RS485 2 wire, non-isolated, RS485 (Modbus RTU)

ELECTRICAL	
Supply voltage with current output	18..28 VDC
Supply voltage with RS485	12..28 VDC
Supply voltage, in pressures over 20 bara (290 psia) or temperatures below 0 ⁰C (32 °F)	24..28 VDC
Supply current during normal measurement	Max. 10 mA + load current
Supply current during self-diagnostics	Max. 220 mA pulsed
Load for current output	Max. 500 kΩ
Load for voltage output	Min. 10 kΩ

MECHANICAL	
Mechanical connection	ISO G1/2"
Housing material	Stainless steel (AISI316L)
Weight	G-thread version 90 g	3.2 oz
Ingress Protection	IP66	NEMA4

OPERATING ENVIRONMENT	
Target gases	Non-corrosive gases
Temperature	-40..60 °C	-40..140 °F
Relative humidity	0..100% RH
Pressure	0..50 bara	725 psia

0..50 BARA	725 PSIA	
CE	EN 61326-1, EN 550022

Order codes VP Dew Point Sensor

VP DEW POINT SENSOR	
VPA.8000.1018	VP Dew Point Sensor BSP (-70 to +60 °C | -94..140 °F)
VPA.8000.1019	VP Dew Point Sensor kit (-70 to +60 °C | -94..140 °F)

VP Dew Point Sensor Start Kit:

> VP Dew Point Sensor
> Sampling block
> Cable 10m / 32.8 ft
> Quick connector
> ¼" mail connector
> Leak screw with sound muffler
> Calibration certificate

VP DEW POINT SENSOR ACCESSORIES	
VPA.8000.1514	Sampling block with 3/8" BSP female connection
VPA.8000.1515	O-ring set (3 pieces): install your dew point sensor without teflon tape The O-rings are reusable
VPA.8000.1511	USB service cable to set up the dew point sensor
VPA.8000.1510	4-pin M8 Cable 10m | 32.81ft
VPA.8000.1516	Replacement filter
VPA.8000.1517	Adapter 1/2" NPT to 3/8 inch BSP
VPA.8000.1512	External Display 420
VPA.8000.1513	External Display 420 with alarm relay

USB Service Cable VPA.8000.1511
Makes configurating your VP Dew Point
Sensor easy

Compressed air dew point applications

The requirements for dew point in a compressed air system are completely dependent on your business and your factory circumstances. Here are some application examples.

Transport in paint and pharmaceutical factories

Compressed air is used in the transportation of products like paint powder or, in a pharmaceutical factory, powder for pills. Dew point is very critical, since any water can dampen the powder. This can affect final product quality and can even allow fungal growth, resulting in loss of end-product.

Routing of piping in all seasons

Compressed air piping is often routed outdoors. The best dew point for the prevention of maintenance issues is dependent on the coldest season temperature. If the dew point is not selected correctly, condensation will occur. Or even worse, when outdoor temperatures go below freezing, ice from the condensation will form, resulting in frozen instrumentation and valves.

Spray painting car bodies

The paint for spray painting car bodies is very sensitive. Any water mist can result in rejection of the paintwork and in costs for re-work.

Food industry

Food quality is of course very critical. So, to avoid water droplets on cookies or bread from the packing machine or during transport, the dew point has to be very low and monitored constantly.

Dew Point Sensor – Extreme Dry Air

For extreme dry air applications,
we recommend the Dew Point Sensor –
Extreme Dry Air with its measurement
range as low as -100 °C / -148 °F.

Product highlights:

> 2-wire loop powered connection
> Dew point or ppm moisture content
> IP65 (NEMA 4)
> Fast response time

Specifications: Dew Point Sensor – Extreme Dry Air

PERFORMANCE	
Measurement range	-100..20°C	-148..68 °F dew point
Accuracy (dew point):	±2 °C	±3.6 °F dew point
Response time	5 mins to T95 (dry to wet)

ELECTRICAL OUTPUT/INPUT	
Output signal	4..20 mA (2-wire) current source
Supply voltage	12-28VDC
Current consumption	20 mA max
Supply voltage influence	±0.005% RH/V

OPERATING CONDITIONS	
Operating humidity	0 .. 100% RH
Operating temperature	-40..60°C	-40..140 °F
Operating pressure	450 barg max.
Temperature coefficient	Temperature compensated across operating temperature range

| MECHANICAL SPECIFICATIONS	
Ingress protection	IP65	NEMA 4
Housing material	Stainless steel
Dimensions	L=132mm x ø27mm	5,2 x 1,1"
Filter	HDPE Guard <10 μm
Process connection	5/8" - 18 UNF
Connection	DIN connector

Order Codes Dew Point Sensor – Extreme Dry Air

ORDER CODES DEW POINT SENSOR – EXTREME DRY AIR	
VPA.8000.1003	Dew Point Sensor – Extreme Dry Air
VPA.8000.1512	External Display 420
VPA.8000.1513	External Display 420 with alarm relay

Filter for sampling block

The sampling block with filter (VPA.8000.1550) comes with integrated particulate filter. The 99.5% 0.3-micron particulate filter provides further protection against solid contamination.

Sampling block without filter

Sampling block with filter
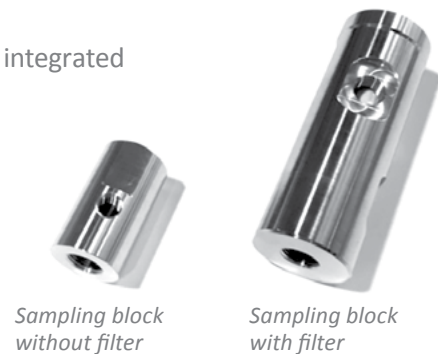
VPVision

Monitor the dew point, together with flow and pressure and more with the VPVision monitoring system. VPVision is the complete real time energy monitoring solution for all utilities within your company. Get insight into your usage and see the patterns on your supply and demand side. Have the data needed to take factual and well-founded decisions on your costs and investments.

Reveal the consumption of all utilities, including compressed air, technical gases, steam, vacuum, natural gas, electricity, waste water, heating fuels etc. VPVision enables you to view data on any platform from a PC to a smartphone enabling your organization to raise the energy awareness among staff and management. It will be your guiding hand for individuals, teams or at company-wide level to target energy savings.

External Display 420

Monitor your dew point locally with the External Display 420. The display is available with 2 optional built-in alarm relays, which can be used to trigger an external alarm, for example via your BMS/ SCADA system.

The display has one port to read out one dew point sensor at the time. The External Display 420 is compatible with all VPInstruments dew point sensors.

ORDER CODES EXTERNAL DISPLAY 420	
VPA.8000.1512	External Display 420
VPA.8000.1513	External Display 420 with alarm relay

energy insights trusted by professionals™

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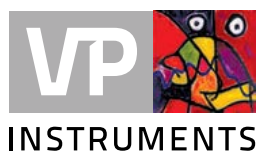www.vpinstruments.com

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Order today!

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