What is dew point?
Dew point is the temperature to which air must be cooled for water vapor in it to condense into dew or frost. At any temperature there is a maximum amount of water vapor that the air can hold. This maximum amount is called water vapor saturation pressure. Addition of more water vapor results in condensation.

Why is moisture problematic?
Condensation in pressurized air is problematic because it causes blockages in pipes, machinery breakdowns, contamination and freezing.

What is the effect of pressure on dew point?
Air compression increases water vapor pressure and thus dew point. It is important to take this into consideration if you are bleeding the air to atmosphere before taking a measurement. The dew point at the measurement point will be different from the dew point in the process.

What is the typical range of dew point?
Dew point temperatures in compressed air range from ambient down to -80 °C (-112 °F), sometimes lower in special cases. Compressor systems without air drying capability tend to produce compressed air that is saturated at ambient temperature. Systems with refrigerant dryers pass the compressed air through a cooled heat exchanger, causing water to condense out of the air stream. These systems typically produce air with a dew point no lower than 5 °C (41 °F). Desiccant drying systems absorb water vapor from the air stream and can produce air with a dew point of -40 °C (-40 °F) and drier if required.

How Dew Point is Reliably Measured?*
- Select an instrument with the correct measuring range.
- Understand the pressure characteristics of the dew point instrument: Some instruments are not suitable for use at process pressure. They can be installed to measure compressed air after it is expanded to atmospheric pressure, but the measured dew point value will have to be corrected if pressure dew point is the desired measurement parameter.
- Install the sensor correctly: Follow instructions from the manufacturer. Do not install dew point sensors at the end of stubs or other “dead end” pieces of pipe where there is no airflow.

*Some principles of dew point measurement apply to all types of instruments, regardless of manufacturer.
Consider the following when installing a Vaisala dew point instrument:

A. The most common installation for a dew point sensor isolates the sensor from the compressed air line. This is accomplished by installing the sensor in a “sample cell” and connecting the cell to a “T” in the compressed air line at the point of interest. A small amount of compressed air is then bled past the sensor. The cell should be made of stainless steel and connected to the “T” with tubing (1/4” or 6 mm). It is useful to install an isolation valve between the cell and the air line. This enables easy installation and removal of the sensor.

B. A flow-regulating device is necessary to control airflow past the sensor. The desired flow rate is only 1 L/min (2 scfh). The regulating device can be a leak screw or a valve. To measure pressure dew point, the regulating device is installed downstream of the sensor, so that when the isolation valve is opened, the sensor is at the process pressure. To measure dew point at atmospheric pressure, the regulating device should be installed upstream of the dew point sensor.

C. Do not exceed the recommended flow rate. When measuring pressure dew point, an excessive flow rate will create a local pressure drop at the sensor. Because dew point temperature is pressure sensitive, this will create an error in the measurement.

D. The best tubing material is stainless steel (SS). Nonmetallic tubing can absorb and desorb water vapor, creating a lag in measurement response. If SS tubing is not available, consider using PTFE or other materials that do not absorb water. Avoid the use of clear plastic tubing or yellow rubber tubing.

E. It is possible to reduce installation costs for permanent dew point instruments by installing the sensor directly in the compressed air line. In these cases it is important to choose a location where the sensor has adequate airflow and where the temperature of the compressed air is at or near ambient.

Choose the Right Dew Point Instrument for Optimized Compressed Air Quality

Our unique sensor technologies cover the full dew point range for practically any compressed air system. Vaisala DRYCAP and HUMICAP sensor technologies ensure accurate, reliable measurements with excellent long term stability and fast response. All Vaisala sensors withstand exposure to contaminants like water spikes, ambient humidity, compressor oil and chemical impurities. They also have the fastest wet-to-dry response time on the market and minimal drift that allows for a long 2-year calibration interval.

The DRYCAP® polymer sensor technology incorporates unique innovations such as the patented auto-calibration feature. This auto calibration maintains the specified accuracy by warming the sensor at set intervals to indicate a possible offset drift to the measurement electronics for automatic correction.
Dewpoint Instruments

DMT340 Transmitter, Configurable fixed mount
-70...+45 °C (-94...+113 °F) Td with ±2 °C (±3.6 °F) accuracy
Configurable with various options
- Display/keypad
- Data logging and Relay module
- Multiple probe option
- Integrated data logging with over four years of measured history
- Multilingual menu (EN, DE, FI, FR, ES, JA, RU, SV, ZH)
- Pressure up to 50 bar
- DRYCAP® sensor technology
Read more or download the datasheet at www.vaisala.com/DMT340

DMT132 Transmitter for Refrigerant Dryers
-20...+50 °C (-4 ... +122 °F) Td
- Affordable, yet highly accurate: ±1 °C (±1.8 °F) in refrigerant dryer measurement range
- Excellent long-term stability – resistant to compressor oil
- Low powered, 10...28 VDC
- Pressure up to 20 bar
- HUMICAP® sensor technology
Read more or download the datasheet at www.vaisala.com/DMT132

DMT143 Miniature Dew Point Transmitter
-70...+30 °C (-94...+86 °F) Td with ±2 °C (±3.6 °F) accuracy
- Small size for compact industrial dryer applications
- Stable and cost-efficient
- LED alarm for exceeded dew point level
- Pressure up to 50 bar
- DRYCAP® sensor technology
Read more or download the datasheet at www.vaisala.com/DMT143

DPT146 Transmitter with Integrated Pressure Measurement
-70...+30 °C (-94...+86 °F) Td with ±2 °C (±3.6 °F) accuracy
- The first transmitter with combined dew point and pressure measurement
- Compatible with Vaisala Hand-Held DM70 for easy spot-checking, local display and data logging
- Pressure up to 10 bar
- DRYCAP® and BAROCAP® sensor technology
Read more or download the datasheet at www.vaisala.com/DPT146

DMT143L Dewpoint Transmitter for OEM Dryer Applications
-60...+30 °C (-76...+86 °F) Td with ±2 °C (±3.6 °F) accuracy
- Compact, easy to install in tight places
- Pressure up to 20 bar
- DRYCAP® sensor technology
Read more or download the datasheet at www.vaisala.com/DMT143L

DMT152 Transmitter for Low Dew Point Measurement
-80...-10 °C (-112...-14 °F) Td with ±2 °C (±3.6 °F) accuracy
- Measurement range down to -80 °C (-112 °F)
- Pressure up to 50 bar
- DRYCAP® sensor technology
Read more or download the datasheet at www.vaisala.com/DMT152
viewLinc software provides monitoring with alarming and real-time data trending for dew point and more. viewLinc allows users to monitor environments measured with Vaisala devices via any current Web browser. Ideal for large-scale, multi-facility systems and standalone applications, viewLinc uses your existing network, eliminating the cost of installing and maintaining a dedicated network for a continuous monitoring system.

viewLinc features a mobile-optimized interface for remote monitoring, reporting and alarm management. Along with the location-based reporting and data logging capability, mobile optimization allows users to act on alarms immediately via SMS message.

viewLinc also provides time-zone based reporting, making the reporting functions correlate with the localized time of data collection and alarming. With software versions in English, German, French, Swedish, Chinese, Japanese, Spanish and Portuguese, the system is ideal for applications ranging from single-location monitoring up to globally standardized monitoring across hundreds of locations.

viewLinc Allows Users to:

- View real-time data in a graphical format and generate historical data trending and alarm reports delivered automatically and on your schedule;
- Receive visual, audible or email alarms if conditions go out of specification or if the network goes down;
- Analyze events, such as alarms, acknowledgements or communication problems;
- Schedule transfers of data into graphs and tables;
- Create pre-configured comments for alarm notifications for specific monitored areas;
- Assign permission to restrict users’ views, thresholds setting abilities, or alarm acknowledgment by personnel areas of responsibility;
- Customize alerts according to shift schedules and escalation procedures.
**DMT340 Transmitter with LAN or WLAN connectivity**

**DMT132, DMT143, DMT152, or DPT146 with SP4000 data logger and an Ethernet interface or direct to a PC**

Please contact us at www.vaisala.com/requestinfo