

Effective Moisture (Dewpoint) Monitoring in Nitrogen Generation Processes Incorporating the Alpha Moisture Systems' AMT Dewpoint Transmitter

Introduction

In the field of industrial processes, nitrogen generation plays a critical role in a wide range of applications, such as chemical manufacturing, pharmaceuticals, electronics, food packaging, and many more. Ensuring the purity and quality of the generated nitrogen is of utmost importance to maintain the integrity of these processes. To achieve this, precise and reliable monitoring of the dewpoint, a critical indicator of moisture content in the nitrogen stream, is necessary.

Alpha Moisture Systems, a renowned manufacturer of high-quality moisture (dewpoint) measurement instrumentation for the gases and compressed air sectors, offering the AMT Dewpoint Transmitter, designed specifically to control the purity and quality in nitrogen generation processes.

AMT
Dewpoint
Transmitter



Dewpoint is the temperature at which moisture starts to condense from a gas as it is cooled, indicating the point at which the gas becomes saturated with water vapor. Monitoring the dewpoint in a nitrogen generation process ensures that the moisture content remains at an acceptable level, preventing the formation of condensation and potential damage to equipment and product manufacturing.

Key Features and Specifications

The AMT Dewpoint Transmitter boasts several features that make it a reliable choice for controlling the purity and quality of nitrogen in various industrial applications:

Wide Dewpoint Range: The AMT Dewpoint Transmitter is available in dewpoint ranges between $-120\text{ }^{\circ}\text{C}$ to $+20\text{ }^{\circ}\text{C}$ ($-184\text{ }^{\circ}\text{F}$ to $+68\text{ }^{\circ}\text{F}$) or the equivalent in ppm(v), ppb(v), lb/MMSCF and g/m^3 . This broad range allows it to accommodate different nitrogen generation setups and cater to various industries' specific requirements.

High Accuracy: Alpha Moisture Systems' AMT Dewpoint Transmitter offers excellent and consistent accuracy, ensuring precise measurement of dewpoint temperature even in demanding industrial environments.

Easy Integration: The transmitter can be seamlessly integrated into existing nitrogen generation systems, allowing users to upgrade their monitoring capabilities without major modifications.

The AMT Dewpoint Transmitter is designed to work in conjunction with Alpha Moisture Systems' DS1200 or DS4000 Dewpoint Hygrometer Display units. These displays provide a user-friendly interface with alarm set points for monitoring and analyzing dewpoint data from the transmitter.

DS1200 Dewpoint Hygrometer Display: The DS1200 is a compact and cost-effective display unit that connects to the AMT Dewpoint Transmitter via a cable of up to 3280 feet (1000m). It offers a clear and easy-to-read LED display, showing real-time dewpoint measurements.



DS1200
HYgrometer
Display

DS4000
HYgrometer
Display



DS4000 Dewpoint Hygrometer Display: The DS4000 is a more advanced option, featuring more functions and features and intuitive menu navigation also with Alarm Set Points and maximum cable length as the DS1200.

Applications in Nitrogen Generation Processes

In nitrogen generation processes, the AMT Dewpoint Transmitter serves several critical roles:

Quality Control: Maintaining a consistent and low dewpoint in the nitrogen stream ensures that moisture-sensitive products and equipment are protected from damage or corrosion. This is crucial in industries like electronics, pharmaceuticals, and food packaging, where high-quality nitrogen is essential.

Efficiency Optimization: By closely monitoring the dewpoint, operators can optimize the nitrogen generation process, preventing excessive energy consumption and reducing operating costs.

Safety Assurance: In applications where nitrogen is used to purge or inert hazardous environments, ensuring a low dewpoint prevents the risk of gas condensation and maintains a safe operating environment.

Preventing Freezing: In cryogenic applications, such as those in the liquefaction of gases, controlling the dewpoint prevents the formation of ice or frost, which can impede the efficiency of the process.

Conclusion

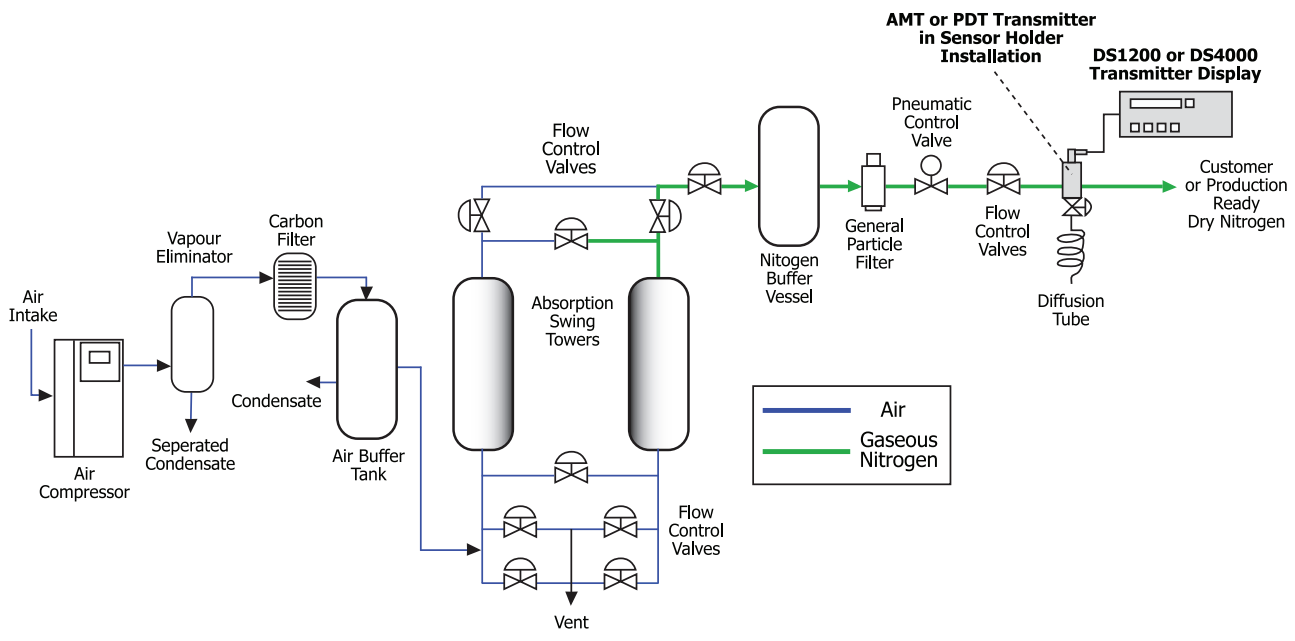
Alpha Moisture Systems' AMT Dewpoint Transmitter, in conjunction with the DS1200 or DS4000 Dewpoint Hygrometer Display, provides a

reliable and accurate solution for monitoring dewpoint in nitrogen generation processes. By ensuring the purity and quality of nitrogen, industries can safeguard their products, equipment, and processes, leading to increased efficiency and improved safety.

With its wide dewpoint range and robust construction, the AMT Dewpoint Transmitter offers a valuable tool for a broad spectrum of indus-

tries, allowing them to maintain optimal conditions for their specific nitrogen generation requirements.

Basic application illustrations of Pressure Swing Absorption Type (PSA) and Membrane type Nitrogen Generators



Alpha Moisture Systems' have over 30 years experience in the design and manufacture of dewpoint sampling systems in compressed air applications, from standard to complex.

Contact our Technical Sales Team for more information and expert advice, or visit our website: amsystems.co.uk

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