OHIO LUMEX®

Ei4200 Dew Point Monitor

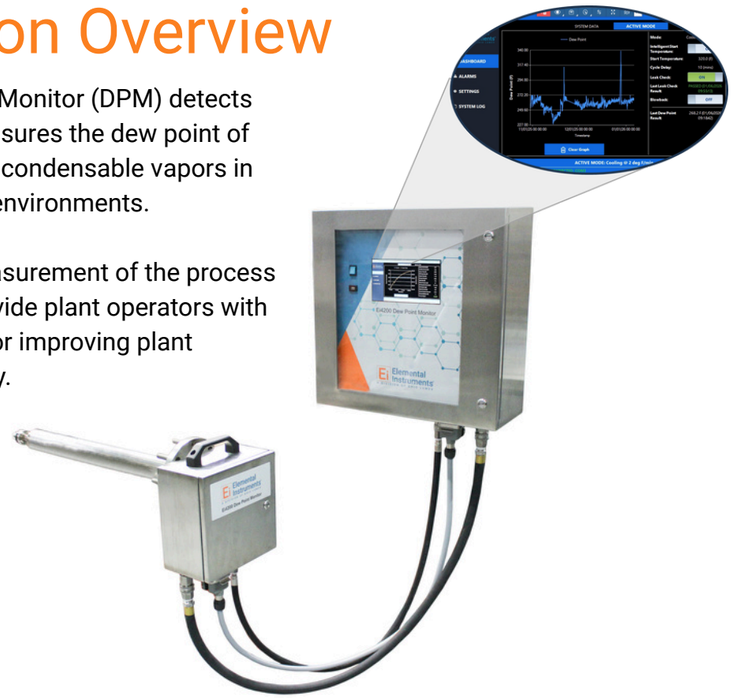
Online Detection and Measurement

Functional Overview

Application Overview

The Ei4200 Dew Point Monitor (DPM) detects condensation and measures the dew point of sulfuric acid and other condensable vapors in challenging industrial environments.

Direct, continuous measurement of the process gas dew point can provide plant operators with valuable information for improving plant operation and reliability.



Process Improvement Areas

Sulfuric Acid Manufacturing and Regeneration

- Immediate leak detection
- Economizer heat recovery optimization
- Reduce stack acid aerosol release

Dry SO_2 Scrubbing Including CDS and SDA

- Improve lime utilization
- Reduce downstream corrosion
- Improve overall heat recovery

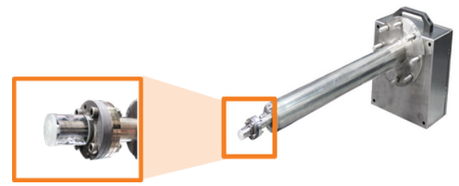
Utility and Industrial Dry Sorbent Injection for SO_3 Control

- Reduce hydrated lime costs
- Improve unit turndown flexibility
- Improve heat rate/increase unit capacity

Measurement Technology

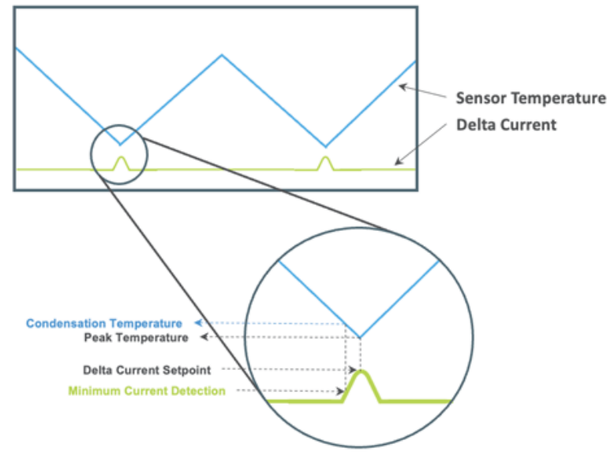
The Ei4200 works by measuring the current flow between two electrodes embedded in the surface of a uniquely constructed sensor. The presence of a condensed liquid is determined when the measured current between these two electrodes exceeds a user-configured threshold.

When the required current level is detected, a thermocouple embedded in the glass surface reports the corresponding temperature, and the dew point is determined



Operating Protocol

1. The temperature of the sensor is reduced from high to low by means of cooling air on the inside of the cell.
2. Two electrodes, embedded in the sensor surface, look for current flow using condensed acid vapor as the conductive path.
3. As the temperature drops, there will come a point where vapor condenses and current is detected.
4. When the current exceeds a preset threshold (Delta Current Limit), the peak temperature is recorded as the dew point.
5. Cooling air is then limited, the condensate evaporates, and the sensor temperature increases until it reaches the “start” temperature, at which point the process repeats.



Data Reporting Options

All instrument data, including dew point, process cycle current/temperature, as well as sensor baseline current and process configuration parameters, are available through a serial Modbus link or through a WiFi connection to the process control computer.

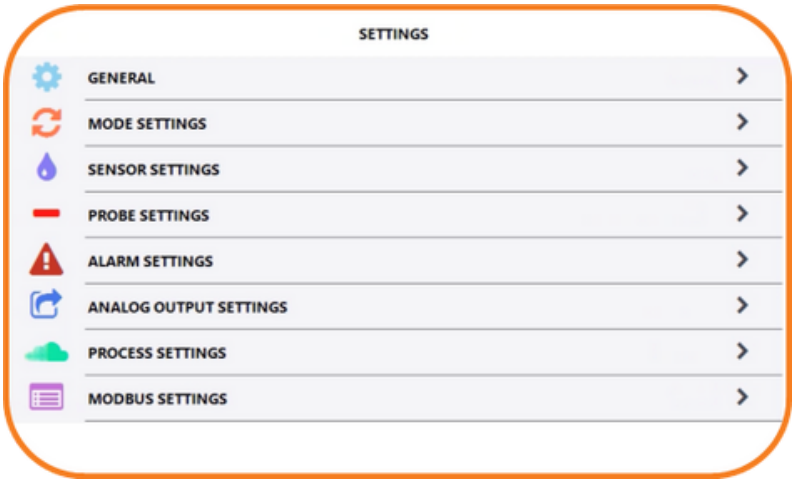
Additionally, dew point and calculated SO_3 (not valid for sulfuric acid applications) can be reported through two analog output channels.

Direct Detection. Proven Accuracy.

Engineered for Real-World Performance.

Operating Flexibility

The Ei4200 provides the user with multiple modes of operation to tailor instrument performance to the needs of the application. All system configuration variables are user-controlled and are entered or edited from the main screen on the control cabinet.



Additional Features

The Ei4200 includes sufficient feature flexibility that certain options must be specified.

Item	Range or Options	
Probe Length	5’ Standard	3’ – 11’ Options
Probe System	Low Particulate	High Particulate
Pneumatic Hose/Cable Bundle	25’ Std	Avail up to 50’
Control Cabinet	Permanent Mount	Portable
Mounting	Fixed	Ferrule/Nut Flange

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