

## PRODUCT DATA SHEET

# 241CE II Hydrocarbon Dew Point Analyzer

## Accurate, reliable hydrocarbon dew point measurement

Natural gas producers, distributors, and industrial consumers understand the importance of ensuring that natural gas meets strict quality specifications which typically include a maximum hydrocarbon dew point temperature. Even relatively small quantities of liquids in natural gas transmission lines can damage sensitive metering equipment, plug lines, interfere with odorants, and most importantly, create unsafe conditions.

The 241CE II Hydrocarbon Dew Point Analyzer uses a thermoelectric cooler to control the temperature of a two-surface mirror. The mirror's temperature is measured using a platinum resistance temperature detector (RTD) which provides better long-term stability and accuracy versus thermocouples. Combining sensitive optics with a precisely controlled cooling rate, the 241CE II delivers improved accuracy and repeatability compared to a manual chilled mirror device. In many applications, automated, on-line analyzers for the measurement of hydrocarbon dew point are replacing manual chilled mirrors, which require a trained operator, or calculation methods using a gas chromatograph, which can be susceptible to large errors in the determination of hydrocarbon dew point.

### Turnkey installation

A fully integrated sample system package, including proprietary multiple stage filtration specifically designed for natural gas samples, protects the analyzer from common natural gas contaminants.

### Reliable operation

The single-cell, dual-surface mirror design eliminates interferences, allowing the 241CE II to differentiate between water and hydrocarbon condensate, ensuring an accurate measurement of the hydrocarbon dewpoint.

### Automated measurement

The 241CE II uses a three-stage measurement process that requires no tuning, no adjustments and no need for external coolant. The optical measurement of hydrocarbon dew point temperature eliminates any errors due to operator interpretation of the condensate formed on the mirror.



## KEY BENEFITS

- Accurate and objective direct measurement of hydrocarbon dew point temperature at pipeline or cricondenthem pressure
- Proprietary three-stage sample filter provides superior protection
- Designed for unattended operation with low maintenance
- Electricity is the only consumable
- Digital communications via Modbus RTU protocol
- Optional remote start of measuring cycle available via external input
- Can be combined with AMETEK's quartz crystal microbalance (QCM) moisture measurement in a single package

## KEY MARKETS

- Natural gas
- Power
- Chemical and petrochemical
- Refining

## APPLICATIONS

- Natural gas custody transfer stations, pipelines, underground storage, blending control
- Monitor amount of superheat in gas turbine feed gas
- Optimizing of switch times for pressure swing absorption

## PERFORMANCE SPECIFICATIONS

<b>Methodology</b>	Chilled-mirror
<b>Accuracy</b>	Hydrocarbon dew point temperature $\pm 1^{\circ}\text{C}$ ( $\pm 2^{\circ}\text{F}$ )
<b>Sensitivity</b>	$\pm 0.1^{\circ}\text{C}$ ( $\pm 0.2^{\circ}\text{F}$ ) (stability of temperature measurement only)
<b>Sample transport</b>	$\frac{1}{4}$ inch stainless steel instrument tubing recommended (heat tracing may be required)
<b>Typical flow</b>	1 to 5 L/min. (2 to 10 scfh) depending on sample system configuration and pressure
<b>Ambient temperature</b>	Typically 10 to 40°C (50 to 104°F) or lower depending upon minimum dewpoint requirements
<b>Cooling capability</b>	Typically 60°C (108°F) below the temperature at the analyzer installation The cooling capability of the analyzer is affected by the ambient temperature, sample gas composition and the pressure (Consult your AMETEK representative for evaluation of your application)
<b>Highest measurable dewpoint</b>	Application dependent, typically 15°C (27°F) below the temperature at the analyzer installation
<b>Maximum working pressure</b>	13.79 MPa (2000 psi)
<b>Power</b>	120 VAC, $\pm 10\%$ , 50–60 Hz 240 VAC, $\pm 10\%$ , 50–60 Hz
<b>Power consumption</b>	Less than 275 W
<b>Outputs</b>	Four isolated 4 to 20 mA (loop or self-powered)
<b>Physical dimensions (W x H x D)</b>	571.5 x 838 x 289 mm (22.5 x 33 x 11.37 in.)
<b>Weight</b>	60 kg (132 lb)
<b>Approvals and certifications</b>	Class I, Division 1, Groups C & D ATEX/IECEx II 2 G Ex db IIB T4 Gb Russian Ex Proof Certification 1ExdIIBT3X CE Compliance: Complies with all relevant European Directives

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