Process &
Environmental
Analysis Solutions

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Precisive® 5-271

SYNGAS COMPOSITION, CALORIFIC VALUE, AND WOBBE INDEX MONITOR

The Precisive® 5-271 is designed specifically for on-line quality monitoring of syngas derived from a variety of fuels, including coal and biomass. It provides fast and accurate measurement of Calorific Value, Wobbe Index, and compositional information, including CO_2 in a single, compact analyzer. Based on a unique Tunable Filter Spectroscopy (TFS™) platform from MKS, the analyzer directly measures the component concentrations and calculates gas property values based on widely-accepted ISO standards.

Features & Benefits

- Analysis in seconds
  - — Real-time, continuous measurement
  - — Fast response (seconds)
- No carrier gas or fuel gas requirements
  - — Low operational costs and infrastructure requirements
  - — Suitable for small-scale plants and terminals
  - — Ideal for remote installations
- Robust calibration
  - — Reduced maintenance and operational costs
- Flow-through sensor design
- Compact, outdoor rated, low power
  - — NEMA 4X and IP-66 rating, can be engine or manifold mounted
  - — Engineered to withstand vibration and shock

Applications

- Fuel analysis for engine and combustion control
- Syngas Calorific Value measurement
- Syngas Wobbe Index measurement
- Check metering, blend monitoring, fast-response BTU monitoring
- Fast-response alternative to traditional calorimeter and/or gas chromatograph-type instruments

Specifications

Measurement Parameters and Ranges*

Calorific Value (CV)**	Per ISO 6976:2016	Acetylene	0 – 5%
Wobbe Index (WI)**	Per ISO 6976:2016	Carbon Monoxide	0 – 50%
Methane	0 – 25%	Carbon Dioxide	0 – 50%
Ethane	0 – 25%	Calculated Balance	N_2 (assumed for CV and WI calculations)
Ethylene	0 – 20%		

** Contact MKS for higher or custom ranges*

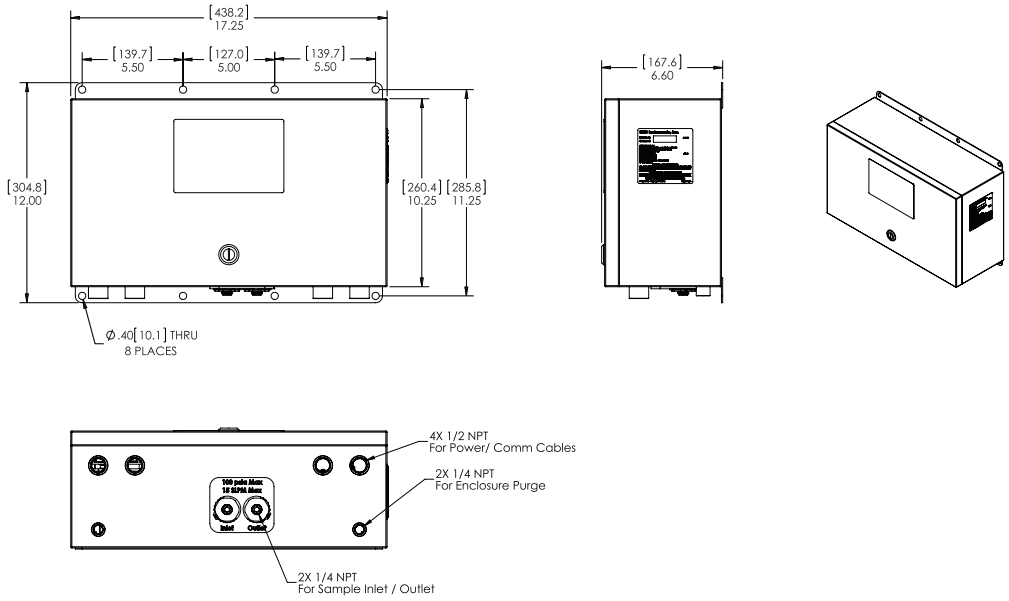
*** Combustion reference/metering reference temperatures: 25°C/0°C*

Precision/Repeatability

Hydrocarbon Channels	±0.05 mol% (absolute)
CO_2	±0.05 mol% (absolute)
CV/WI Computation	±0.05% (relative of reading) or ±0.01 MJ/m^3 (greater of)
Specific Gravity	±0.05% (relative of reading)

Zero Drift	Not to exceed 0.2% per month Maximum of 0.5% throughout life of bulb (~18 months)
Sample Pressure*	0.1 – 5 psig* ** Contact MKS for higher or custom ranges*
Flow Rate*	0.1 – 2 L/min* ** Contact MKS for higher or custom ranges*
Sample Cell	0.35m pathlength, 100mL volume
Weight	12kg (25.8lbs)
Power Requirement	24 VDC or 100 - 240 VAC
Operating Temperature	-20°C to 48°C (ATEX)
Data Output/Communication	Modbus over Ethernet or RS485
Enclosure Dimensions	17.25" (438.2 mm) width, 6.60" (167.6 mm) depth, 11.25" (285.8 mm) height
Certifications	CSA Class 1Div2 Groups A/B/C/D T4. ATEX Zone 2 Ex nAnCIICT4Gc IECEx

II 3G
Ex nA nC IIC T4 Gc
Ta = -20ºC to +48ºC



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