

Precisive[®] Gas Analyzer

Hydrocarbon Gas Composition Analyzer



The Precisive[®] Gas Analyzer is a real-time gas analyzer based on MKS' unique Tunable Filter Spectroscopy (TFS™) platform. The Precisive suite of products are calibrated for the measurement of a wide range of gases across multiple process industries. The real-time, continuous measurement capability provides immediate analysis ensuring control of critical process parameters.

Product Features

- Analysis in seconds
 - Real-time, continuous measurement
- 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
 - Minimized potential sampling and phase change issues
- Compact, outdoor rated, low power
 - Well suited for transportable spot check applications
 - NEMA4X, IP66
 - Engineered to withstand vibration and shock



Key Benefits

- Fuel analysis for engine control (gas turbines, internal combustion engines, fuel cell power plants, etc.)
- Methane number monitoring for internal combustion engine control
- Wobbe Index metering for combustion control applications
- Check metering, blend monitoring, and BTU monitoring
- Custody transfer and fiscal metering
- Biomethane injection control
- Acid/sour gas, syngas composition, and Flare BTU monitoring
- Natural gas fractionation/liquefaction
- Ethylene production

| Description | Natural Gas (Hexane Channel) | Natural Gas Engine & Turbine | Natural Gas, Engine & Turbine, Metering | Acid & Sour Gas |
|--|---|--|--|--|
| Recipe* | 242B | 282 | 283 | 253 |
| CH ₄ | 50-100% | 50-100% | 50-100% | 0-100% |
| C ₂ H ₆ | 0-20% | 0-20% | 0-20% | 0-25% |
| C ₃ H ₈ | 0-10% | 0-10% | 0-10% | 0-25% |
| C4+ | | 0-10% | | |
| iC ₄ H ₁₀ | 0-5% | | 0-5% | 0-10% |
| nC ₄ H ₁₀ | 0-5% | | | |
| nC ₄ + nC ₅ +nC ₆ (as nC ₄) | | | 0-5% | |
| nC ₄ + nC ₅ (as nC ₄) | | | | 0-10% |
| iC ₅ + neoC ₅ (as iC ₅) | 0-2% | | 0-2% | 0-10% |
| n-Hexane | 0-2% | | | 0-5% |
| H ₂ S | | | | 0-50% |
| CO ₂ | 0-20% | 0-20% | 0-20% | 0-50% |
| Balance | Yes | Yes | Yes | Yes |
| High Heating Value (HHV)** | Yes | Yes | Yes | Yes |
| Low Heating Value (LHV)** | Yes | Yes | Yes | |
| Specific Gravity | Yes | Yes | Yes | |
| Wobbe Index (WI) (per ISO 6976: 2016) | Yes | Yes | Yes | Yes |
| Methane Number | | Available | Available | |
| Repeatability (1-sigma, 5 sec measurement time) | <ul style="list-style-type: none"> nC₆, nC₄+nC₅ Channels: <0.1 mol%; All others: <0.05% HHV, LHV & WI: <0.3% of Reading or <0.15 MJ/m³ (greater of) Specific Gravity: <0.06% of Reading | <ul style="list-style-type: none"> Gas Channels: <0.05 mol% HHV, LHV & WI: <0.2% of Reading or <0.1 MJ/m³ (greater of) Specific Gravity: <0.05% of Reading | <ul style="list-style-type: none"> Gas Channels: <0.05 mol% HHV, LHV & WI: <0.2% of Reading or <0.1 MJ/m³ (greater of) Specific Gravity: <0.05% of Reading | <ul style="list-style-type: none"> Gas Channels: <0.1 mol% HHV & WI: <0.3% of Reading or <0.15 MJ/m³ (greater of) Specific Gravity: <0.06% of Reading |
| Estimated Accuracy (mol% or % of Reading, or % of Full Scale, as indicated) (Typical values, with as-received instrument i.e., without span) | <ul style="list-style-type: none"> Gas Channels: ±0.25 mol% or ±0.5% of Full Scale (greater of) HHV, LHV & WI: ±0.7% of Reading or ±0.25 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading | <ul style="list-style-type: none"> Gas Channels: ±0.2 mol% or ±0.5% of Full Scale (greater of) HHV, LHV & WI: ±0.5% of Reading or ±0.2 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading | <ul style="list-style-type: none"> Gas Channels: ±0.2 mol% or ±0.5% of Full Scale (greater of) HHV, LHV & WI: ±0.5% of Reading or ±0.2 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading | <ul style="list-style-type: none"> Gas Channels: ±0.3 mol% or ±1% of Full Scale or ±3% of Reading (greater of) HHV & WI: ±0.7% of Reading or ±0.25 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading |

*Other configurations are available. Contact MKS for options.

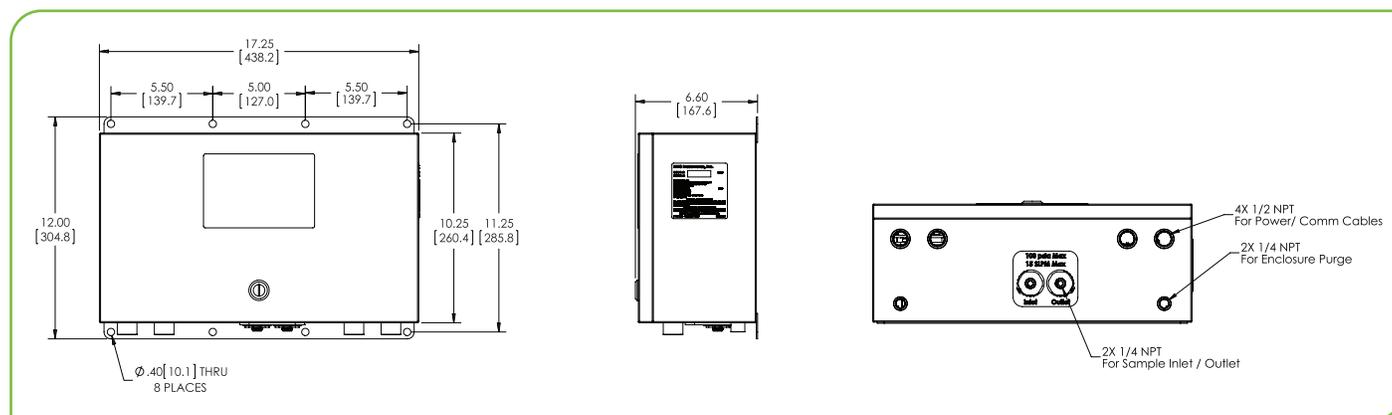
**Combustion reference/metering reference temperatures: 25°C/0°C

| Description | Olefins/Flare | Liquefied Petroleum Gas | Liquefied Natural Gas | SynGas |
|--|--|--|--|--|
| Recipe* | 155 | 165 | 156 | 271 |
| CH ₄ | 0-100% | | 0-100% | 0-25% |
| C ₂ H ₆ | 0-25% | 0-25% | 0-100% | 0-25% |
| C ₃ H ₈ | 0-25% | 0-100% | 0-100% | |
| iC ₄ H ₁₀ | 0-50% | 0-100% | 0-10% | |
| nC ₄ H ₁₀ | 0-50% | | | |
| nC ₄ + nC ₅ + nC ₆ (as nC ₄) | | 0-100% | 0-10% | |
| C ₃ H ₆ | 0-100% | 0-10% | | |
| C ₂ H ₄ | 0-100% | 0-10% | | 0-20% |
| C ₂ H ₂ | 0-30% | | | 0-5% |
| iC ₅ + neoC ₅ (as iC ₅) | | 0-10% | 0-10% | |
| iso-C ₅ H ₁₂ | 0-10% | | | |
| 1-Butene | 0-20% | | | |
| cis-2-Butene | 0-20% | | | |
| trans-2-Butene | 0-20% | | | |
| isobutylene | 0-20% | | | |
| 1,3-Butadiene | 0-20% | | | |
| CO | | | | 0-50% |
| CO ₂ | | | | 0-50% |
| Balance | Yes | Yes | Yes | Yes |
| High Heating Value (HHV)** | Yes | Yes | Yes | Yes |
| Low Heating Value (LHV)** | Yes | Yes | Yes | Yes |
| Specific Gravity | Yes | Yes | Yes | Yes |
| Wobbe Index (WI) (per ISO 6976: 2016) | Yes | Yes | Yes | Yes |
| Methane Number | | | Available | |
| Repeatability (1-sigma, 5 sec measurement time) | <ul style="list-style-type: none"> Gas Channels: <0.1 mol% HHV, LHV & WI: <0.4% of Reading or <0.2 MJ/m³ (greater of) Specific Gravity: <0.05% of Reading | <ul style="list-style-type: none"> Gas Channels: <0.05 mol% HHV, LHV & WI: <0.2% of Reading or <0.1 MJ/m³ (greater of) Specific Gravity: <0.05% of Reading | <ul style="list-style-type: none"> Gas Channels: <0.05 mol% HHV, LHV & WI: <0.2% of Reading or <0.1 MJ/m³ (greater of) Specific Gravity: <0.05% of Reading | <ul style="list-style-type: none"> Gas Channels: <0.15 mol% HHV, LHV & WI: <0.4% of Reading or <0.2 MJ/m³ (greater of) Specific Gravity: <0.1% of Reading |
| Estimated Accuracy (mol% or % of Reading, or % of Full Scale, as indicated) (Typical values, with as-received instrument i.e., without span) | <ul style="list-style-type: none"> Gas Channels: ±0.5 mol% or ±1% of Full Scale or ±3% of Reading (greater of) HHV, LHV & WI: ±1% of Reading or ±0.4 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading | <ul style="list-style-type: none"> Gas Channels: ±0.2 mol% or ±1% of Full Scale or ±2% of Reading (greater of) HHV, LHV & WI: ±0.5% of Reading or ±0.2 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading | <ul style="list-style-type: none"> Gas Channels: ±0.2 mol% or ±1% of Full Scale (greater of) HHV, LHV & WI: ±0.5% of Reading or ±0.2 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading | <ul style="list-style-type: none"> Hydrocarbon Channels: ±0.2 mol % or ±3% of Reading (greater of); CO and CO₂ channels 0.5 mol% or ±3% of Reading (greater of) HHV, LHV & WI: ±1% of Reading or ±0.4 MJ/m³ (greater of) Specific Gravity: ±0.5% of Reading |

Specifications

| | | |
|--------------------------------------|---|--|
| Zero Drift | Not to exceed 0.2% per month; Maximum of 0.5% throughout life of bulb (~36 months) | |
| Sample Pressure | 0.1 – 5 psig | |
| 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 | <ul style="list-style-type: none"> • Tamb (AC): -20°C to +48°C • Tamb (DC): -20°C to +50°C | |
| Data Output/Communication | Modbus over Ethernet or RS485 | |
| Enclosure Dimensions | 17.25" (438 mm) width, 6.60" (168 mm) depth, 11.25" (286 mm) height | |
| Compliance | <ul style="list-style-type: none"> • EU27: CE • United Kingdom: UKCA | <ul style="list-style-type: none"> • US/Canada: CSA • South Korea: KC |
| Hazardous Area Certifications | <ul style="list-style-type: none"> • Class 1, Division 2, Group A, B, C and D, T4 • Class 1, Zone 2, AEx nA nC IIC T4 Gc • Ex nA nC nL IIC T4 Gc | <ul style="list-style-type: none"> • Ex ec nC IIC T4 Gc – IECEx CSA 14.0049 – Sira 13ATEX4316 |

Please contact your local MKS office for price and availability information.



Dimensional Drawing –

Note: Unless otherwise specified, dimensions are nominal values in inches (millimeters referenced).