The Precisive 5-165 model is a real-time hydrocarbon gas analyzer calibrated for on-line LPG (liquefied petroleum gas) composition monitoring and heating value analysis. This package is optimized for gas-phase LPG product analysis containing C2 – C5 alkane gases as well as ethylene and propylene.

The MKS Precisive® product platform of innovative optical analyzers based on Tunable Filter Spectroscopy (TFS™) provides real-time gas analysis in the natural gas and hydrocarbon processing industries, including refineries, hydrocarbon processing plants, gas-to-power machines, biogas processes and fuel gas transportation and metering. Precisive TFS can be utilized from UV (Ultra-Violet) through IR (Infra-Red) spectral regions.

Precisive optical sensors are the first widely deployed hydrocarbon composition monitors to feature real-time unattended analytics with hydrocarbon speciation capability equivalent to traditional Gas Chromatography (GC) instruments yet, with much lower cost of ownership.

Product Features

- Analysis in seconds
  - Continuous measurement instead of batch handling
  - Quick spot check measurement
  - Minimized sampling issues
  - Real-time feedback (seconds, not minutes)

- No re-calibration, no carrier gas requirements, no cleaning and no columns
  - Low operational costs
  - Well suited for loading and unloading measurements
  - Fast payback and increased instrument cycle time

- Flow-through sensor design
  - No sensitivity to pressure and flow variations
  - Minimized potential sampling issues

- Small footprint, outdoor rated
  - Well suited for transportable spot check applications
  - Process control to DCS or portable spot-check device
  - NEMA4X, IP66 rated with real-time Modbus output

Applications

- LPG fast-response distillation measurement
- Spot check measurement / custody transfer given the wide composition variation of LPG
- Accurate and reproducible results in under 5 seconds
- Strong linearity throughout the range, robust LPG composition analyzer
- Ideal fast-response alternative to traditional gas chromatograph type instruments
### Specifications

**Measurement Ranges***

<table>
<thead>
<tr>
<th>Component</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane</td>
<td>0 – 25% (C2)</td>
</tr>
<tr>
<td>Propane</td>
<td>0 – 100% (C3)</td>
</tr>
<tr>
<td>iso-Butane</td>
<td>0 – 100% (iC4)</td>
</tr>
<tr>
<td>n-Butane and n-Pentane</td>
<td>0 – 100% (nC4 and nC5)</td>
</tr>
<tr>
<td>Ethylene</td>
<td>0 to 10%</td>
</tr>
<tr>
<td>Propylene</td>
<td>0 to 10%</td>
</tr>
<tr>
<td>C5 (lumped)</td>
<td>0 – 10% (neoC5 and iC5)</td>
</tr>
<tr>
<td>Calculated Balance</td>
<td>H₂ (Hydrogen), O₂ (Oxygen), N₂ (Nitrogen)</td>
</tr>
<tr>
<td>Calorific Value</td>
<td>CV Computed as per ISO 6976:1995</td>
</tr>
<tr>
<td>Wobbe Index</td>
<td>WI Computed as per ISO 6976:1995</td>
</tr>
</tbody>
</table>

**Precision / Repeatability**

- Hydrocarbon Channels: < ±0.1% (absolute)
- CV and WI Computation: < ±0.1% (relative of reading)

**Update Rate**

- 5 seconds (default), software selectable from 1 – 120 seconds

**Zero Drift**

- Not to exceed 0.2% per month on each hydrocarbon channel

**Sample Pressure***

- 0.1 – 2 psig

**Flow Rate***

- 0.1 – 1 L/min

**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

**Certifications**

- CSA Class 1Div2, Groups A/B/C/D, T4. ATEX Zone 2, Ex nAnIIC4T4Gc, IECEx

* Contact MKS for higher or custom ranges

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**Dimensional Drawing**

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

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