The MIP EX 4th Series size (16,6x20mm) low power IR sensor for LEL is a revolutionary new option for instrument suppliers around the globe for use in single and multi-gas fixed and portable disposal analyzers for the measurement of flammable hydrocarbon gases from 0-100% LEL (full scale up to 100% vol CH4). Extremely low power consumption compared with electrochemical sensors (2…5mW with all built-in electronics) the first time opens the possibility for stand alone fixed wireless applications and disposal portables with battery life time up to several years, both for underground (group I) and surface (group II) installations: Ex ia I U / Ex ia IIC U.

The advantages of an IR sensor in a range of markets enables maximum protection, low cost of ownership, and a new outlook on how instruments and sensors are maintained in the field. The MIP EX options is a (a) direct replacement for existing pellistor LEL sensors currently used without the use of a sintered filter, (b) fast response time vary in models from 30 seconds up to as low as 6 seconds at t90; (c) available in stainless steel or plastic housing, the MIP EX is not poisoned by H2S, Phosphorus, or Silicone and is designed off the proven MGD series sensor Optosense offers for fixed and OEM use in proprietary analyzers and sensor heads around the world. MIP EX is best used in applications including:

- **Oil and Gas**
- **Mining**
- **Municipal**
- **Petrochemical**
- **Fire/Hazmat**
- **Chemical**
- **Telecommunication**
- **Offshore**
- **Marine/Shipping**
- **Utilities**
- **Wastewater**
- **Aerospace**
- **General Industry**
- **Rental Fleets**
MIP EX IR LEL Sensor

Data MIP EX
(Group II surface installation)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CH4</th>
<th>HC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range/Full scale</td>
<td>0-100%LEL (0-100%vol)</td>
<td>0-100%LEL (0-20%vol)</td>
</tr>
<tr>
<td>Accuracy in measuring range</td>
<td>±(5%LEL or 10% rdg)</td>
<td>±(5%LEL or 10% rdg)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1% LEL</td>
<td>0.5% LEL</td>
</tr>
<tr>
<td>Repeatability in measuring range</td>
<td>±1% LEL</td>
<td>±1% LEL</td>
</tr>
<tr>
<td>Long term stability</td>
<td>±(5%LEL or 10% rdg)</td>
<td>±(5%LEL or 10% rdg)</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 to +60°C</td>
<td>-40 to +60°C</td>
</tr>
<tr>
<td>Thermal Zero tempco</td>
<td>≤4% LEL</td>
<td>≤10% LEL</td>
</tr>
<tr>
<td>Thermal Span tempco</td>
<td>≥10% LEL</td>
<td>≥20% LEL</td>
</tr>
<tr>
<td>Humidity response zero</td>
<td>4% LEL</td>
<td>2% LEL</td>
</tr>
<tr>
<td>Humidity response span</td>
<td>10% LEL</td>
<td>10% LEL</td>
</tr>
<tr>
<td>Response time (t90) sec</td>
<td>&lt;30</td>
<td>&lt;30</td>
</tr>
<tr>
<td>Power consumption</td>
<td>&lt;5 mW</td>
<td>&lt;5 mW</td>
</tr>
<tr>
<td>Average operational life time, years</td>
<td>&gt;10</td>
<td>&gt;10</td>
</tr>
</tbody>
</table>

**FIG 1**

**FIG 2**

**FIG 3**

**FIG 4**

**FIG 5**

Comments:
* Table content data for MIP EX (Ex ia IIC U) measured in full T range of -40…+60 °C and full concentration range
** Fig 1…5 content typical data for MIP EX type sensors