PROFESSIONAL CONTINUOUS MONITORING OF PROCESS GASES

Gas analysis at combustion process and special gases

SWG 200-1
MODULAR ANALYSIS SYSTEM WITH 19" RACK TECHNOLOGY
INNOVATIVE · ECONOMICAL
MRU offers industrial probes for high and low dust content, for gas temperatures up to 650 °C (stainless steel), up to 1,100 °C (Inconel steel) and up to 1,700 °C (ceramic). Probes with and without heated filter element and probe tubes in several lengths. See separate probe brochure.

200-1

Process gas analyzer
Cost-effective analysis technology in compact design. Chemical and efficient.

- Modules and electrochemical sensors commonly operate in ppm and % range.
- A component analyzer is used everywhere where efficient solutions are required. Within small unit size, IR-active modules and electrochemical sensors, measure continuous, selectively and precisely gases in ppm and %-range.

Individual applications
- Ex-zone2 (special model)
- Up to simultaneous 7 gas components
- Weather proof enclosure
- Complete- / partial air conditioning
- Automatic calibration with test gases
- Sample gas conditioning, also direct at the sampling point
- Easy to service and maintain
- Customized solutions on request

Example: Gas sampling probe for low dust flue gas

Stainless steel probe up to 900 °C with flange DN 65 PN 6 with sintered metal filter 3 µ

Gas sampling system
MRU offers industrial probes for high and low dust content, for gas temperatures up to 900 °C (stainless steel) and up to 1,100 °C (Inconel steel) and up to 1,700 °C (ceramic). Probes with and without heated filter element and probe tubes in several lengths. See separate probe brochure.

11-1 Standard

Hardware
- 19" racks are mounted in a steel metal enclosure with mounting eyelets mounted. The enclosure is equipped with lockable, transparent door, control unit with backlit graphical LCD and keyboard.
- The flue gas conditioning system is processor-controlled and continuously monitors the probe. It uses an electric gas cooler with automatic condensate draining pump; concentration with sample flow monitoring and alarm; auto-zero calibration, data communication and 8 channel analog outputs 4…20 mA.

Analyzer... easy to service!
- 11-1 is easy to swing-open.
- All important parts are readily accessible and easily serviced.
## Measured components

<table>
<thead>
<tr>
<th>Component</th>
<th>Measuring range</th>
<th>Accuracy</th>
<th>Measuring cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen (O_2)</td>
<td>0... 25 %</td>
<td>±0.2 Vol.-% abs.</td>
<td>paramagnetic</td>
</tr>
<tr>
<td>Oxygen (O_2)</td>
<td>0... 25 %</td>
<td>±0.2 Vol.-% abs.</td>
<td>Cerium oxide</td>
</tr>
<tr>
<td>Oxygen (O_2)</td>
<td>0... 21 %</td>
<td>±0.2 Vol.-% abs.</td>
<td>electrochemical</td>
</tr>
<tr>
<td>Carbon monoxide (CO)</td>
<td>0... 4,000 ppm (\ast)</td>
<td>±20 ppm or 5 % reading</td>
<td>electrochemical</td>
</tr>
<tr>
<td>Nitric monoxide (NO)</td>
<td>0... 1,000 ppm (\ast)</td>
<td>±5 ppm or 5 % reading</td>
<td>electrochemical</td>
</tr>
<tr>
<td>Nitric dioxide (NO_2)</td>
<td>0... 200 ppm (\ast)</td>
<td>±5 ppm or 5 % reading</td>
<td>electrochemical</td>
</tr>
<tr>
<td>Sulfur dioxide (SO_2)</td>
<td>0... 2,000 ppm (\ast)</td>
<td>±10 ppm or 5 % reading</td>
<td>electrochemical</td>
</tr>
<tr>
<td>Hydrogen sulfide (H_2S)</td>
<td>0... 500 ppm (\ast)</td>
<td>±5 ppm or 5 % reading</td>
<td>electrochemical</td>
</tr>
</tbody>
</table>

\(\ast\) with high measuring range a discontinuous measurement is recommended.

### 1-gas infrared bench

- **min. measuring range**
  - CO: 0... 100 ppm
  - NO: 0... 200 ppm

- **max. measuring range**
  - CO: 0... 1,000 ppm
  - NO: 0... 1,000 ppm

- **Linearity error**
  - CO: ±2 % of full scale
  - NO: ±2 % of full scale

### 3-gas infrared bench

- **min. measuring range**
  - CO: 0... 1,000 ppm

- **max. measuring range**
  - CO: 0... 1,000 ppm

- **Linearity error**
  - CO: ±3 % of full scale

### THERMAL CONDUCTIVITY DETECTOR

- **min. measuring range**
  - H\(_2\): 0... 1 %

- **max. measuring range**
  - H\(_2\): 0... 100 %

### Calculated values

- **mg/Nm\(^3\), reference to O\(_2\)**

### General specification

- **Warm-up time**: 1h minimum
- **Sample gas conditioning**: integrated gas cooler with dew point = +5 °C
- **Sample gas filtration**: filtering particle size <2µ
- **Sample gas monitoring**: flow regulation and supervision, 30 ... 50 l/h
- **Calibration**: By software, calibration gases for every gas required, instrument air or clean ambient air for auto-zero
- **Operating temperature**: +5 °C ... +40 °C, max. 90 % rh, non condensing
- **Storage temperature**: -20 °C ... +50 °C
- **Ambient conditions**: not for use in aggresive, corrosive or very high dust atmosphere hazardous area use only with special equipment (on request).
- **Display**: full graphic LCD display with backlit
- **Resolution**: depends on range selection, ppm or %
- **Data transfer**: 8 channel analog output 4 ... 20 mA, RS 485 digital (modbus RTU)
- **Alarm relays**: 3x potential free NO contacts
- **Power supply**: 110 ... 230 Vac / 50 ... 60 Hz / 100 ... 500 W, with heated hose control (option) add 100 W/meter
- **Internal main fuse**: 10 A standard (other for long heated sampling line)
- **Protection class**: IP 52 (P.65 / enclosures for outdoor mounting)
- **Weight**: approx. 20 ... 50 kg, depending on system configuration and construction
- **Dimensions**: (W x H x D) 345 x 600 x 575 mm = steel enclosure for indoor mounting (6 U)
  - (W x H x D) 480 x 600 x 575 mm = steel enclosure for indoor mounting (9 U)
  - (W x H x D) 800 x 1,000 x 600 mm = fiber glass enclosure for outdoor mounting

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**dealer:**

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