

MRU –
over 30 years of
innovative gas
analysis

OMS 420 Ex

O₂ & CO_e in-situ monitoring system for use in hazardous area zone 2

The OMS 420 Ex - probe is used for continuous measurement of oxygen and combustible gas concentrations in flue gases up to 1.000 °C of various industrial furnaces/ovens/boilers, with hazard of explosive atmosphere at petroleum refineries, petrochemical plants and natural gas plants.




Until now, in-situ measurements, used to tune boilers, were limited to O₂ only. The introduction of combustibles CO_e -measurements however, to be used simultaneously with O₂-measurements, provides engineers an improved tool to lower excess air to previously unachieved levels. Lowering excess air means lowering fuel consumption, greater cost savings and reduced NO_x emissions.

Main features:

- hazardous area designation of use: **Zone 2 equivalent to Class 1, Div 2, Gr C/D**
- special IP65 pressurized cabinet and z-purge controller, complying to **Ex II 3G Ex pz II T3 Gc**
- unique hot solid electrolyte sensor for combustible CO_e-measurement without need for sample dilution with air as required for catalytic bead sensors (Pellistors)
- easy and fast, on site replaceable detector head with sensors (O₂ & CO_e)
- unique blow-back system for dusty flue gases
- integrated auto-calibration for accurate measurements
- integrated control unit with backlit display, operating key pad, dual galvanic isolated 4...20 mA output and digital output RS 485 (Modbus RTU)
- stainless steel SS316Ti flange 4" ANSI-150 lbs with flow guidance probe tubes, from 300 mm up to 2 m length
- low energy consumption, no poisoning effects on sensors, stable in hot, wet and water saturated flue gases, dust tight and water proof enclosure, with optional ATEX heater for very low ambient air temperatures or ATEX Vortec cooler for high ambient temperatures

Technical specifications

| | Gas | Range | Accuracy | Method |
|--|--|-----------------|------------|-----------------------|
| Measured components | O ₂ | 0 ... 25 % | 0,2 % abs. | zirconium dioxide |
| | CO _e | 0 ... 1.000 ppm | ± 5 % FS | hot solid electrolyte |
| Zero drift Span drift Linearity | < 0,2 % of range per month, negligible with auto-zero < 0,2 % of range per month, negligible with auto-cal < 1 % FS | | | |
| Warm up time | Minimum 30 minutes | | | |
| Response time | < 10 seconds | | | |
| Process conditions Temperature Pressure Flow velocity Probe connection Probe tube length | up to 1.000 ° C 900 to 1.100 mbar min. 1 m/sec to max. 30 m/sec flange 4" ANSI-150 lbs, stainless steel 1.316Ti 300 mm to 2.000 mm, Inconel steel | | | |
| Calibration | Manual or automatic (user free settable) 1 point (offset) or 2 points (offset and span) | | | |
| HMI Human Machine Interface | Graphical, backlit display Keyboard and password protected operation Dual, analog output 4...20 mA, isolated, max. load 500R RS 485 digital interface (Modbus RTU) DIN-rail RS 485/Profibus converter | | | |
| Ex classification |  II 3G Ex pz II T3 Gc | | | |
| Cabinet Dimensions Weight / Protection Operating temperature Storage temperature | Glasfiber reinforced PE with grey, conductive painting 650 x 500 x 350 mm (H x W x D) 25 kg / IP 65 +5 °C ... +45 °C (+65 °C with ATEX Vortec cooler) -45 °C ... +45 °C with cabinet heater -20 °C ... +55 °C | | | |
| Operating requirements Electric power supply Compressed air | 100...240 Vac / 47...63 Hz / 100 W or 300 W with cabinet heater 6...8 bar, free of dust, oil and water (DP -20°C or less) | | | |

MRU – sustainable analysing technology for more than 30 years!

MRU-representative:



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