



Process Analytics

Oxygen measurement – SIL 2 classified

OXYMAT 6 / 61 released for safety-related applications in protective devices

SIL classification 2...

The reliability of OXYMAT 6 has been confirmed by independent certification experts: Together with the OXYMAT 61 model, the gas analyzer has been awarded SIL classification 2. The Safety Integrity Level (SIL) serves as the basis for the specification, drafting and operation of Safety Instrumented Systems (SIS). It is based on the IEC/EN 61508 international standard for functional safety. Among other things, the SIL classification describes the failure probability of a protective device when its function is required by an external fault. The SIL 2 classification obtained by OXYMAT 6 / 61 makes it easier for plant operators to comply with the statutory requirements regarding verification of risk reduction.



... for reliable gas analyzers

The OXYMAT 6 has proven its worth as a reliable gas analyzer for extractive oxygen measurement in thousands of challenging applications. Since it attains a high degree of reliability and accuracy when measuring the oxygen content in gases, it is used worldwide in the chemical industry, in incineration plants and in inert gas monitoring. This tried and tested gas analyzer offers modern electronics, simple operation and analytics designed to suit the measuring task. The OXYMAT 6 mode of operation is based on the paramagnetic alternating pressure principle. This ensures absolute linearity and also permits parameterization of even the smallest measuring ranges (0 to 0.5 % or 99.5 to 100 % O₂). An added advantage is that the detector element does not come into contact with the sample gas. The OXYMAT 6 is suitable for operation even under harsh operating conditions and convinces with/by long durability.



| | OXYMAT 6 / OXYMAT 61 | | |
|---|---|---|-----------------|
| Measuring technique | Extractive | | |
| Analog output | 4–20 mA | | |
| Safety Integrity Level (SIL) | 2 | | |
| Hardware Fault Tolerance (HFT) | 0 | | |
| PFD _{AVG} for ¹ / ₄ year | 4.1 * 10 ⁻⁴ | | |
| Safe Failure Fraction | 70 % | | |
| λ _{SD} (Safe detected Failure Rate) | 0 Failures in time (FIT) | | |
| λ _{SU} (Safe undetected Failure Rate) | 100 Failures in time (FIT) | | |
| λ _{DD} (Dangerous detected Failure Rate) | 780 Failures in time (FIT) | | |
| λ _{DU} (Dangerous undetected Failure Rate) | 378.5 Failures in time (FIT) | | |
| | OXYMAT 6 | OXYMAT 61 | |
| Smallest measuring range | 0–0.5 % | 0–2 % | |
| Detection limit | 50 ppm | 200 ppm | |
| Measuring gas temperature | Below the gas dew point, but min. 0 °C max. 50 °C ¹⁾ | Below the gas dew point, but min. 0 °C max. 50 °C | |
| Housing | 19" rack unit | Field housing | 19" rack unit |
| Degree of protection | IP20 | IP65 ²⁾ | IP20 |
| Sample gas pressure (abs.) | 500 to 1500 hPa | 500 to 3000 hPa | 800 to 1200 hPa |

¹⁾ For the heated field-housing version: max. 145 °C

²⁾ Also following Ex device ID: ATEX II 2G / 3G / 3D – Class I Div 2

Contact your Siemens representative for application-specific data.

Advantages

- Paramagnetic alternating pressure principle: Small measuring ranges (0 to 0.5 % or 99.5 to 100 % O₂ for OXYMAT 6; 0 to 2 % or 98 to 100 % O₂ for OXYMAT 61), absolute linearity
- Detector element has no contact with the sample gas: Suitable for use in harsh environments, long service life
- Physically suppressed zero through selection of suitable reference gas (air or O₂), e.g. 98 to 100 % O₂ for purity monitoring/air separation

Areas of application

- For boiler control in incineration plants
- In safety-related areas
- In the automotive industry (testbed systems)
- Warning equipment
- In chemical plants
- For ultra-pure gas quality monitoring
- Environmental protection
- Quality monitoring
- Inert gas monitoring with certified gas warning equipment (DMT certificate)
- Versions for analyzing flammable and non-flammable gases or vapors in hazardous areas

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