

The GEM5000 landfill gas extraction monitor for measuring CH₄, CO₂ and O₂. It's an easy to use analyser designed to aid balancing the gas field, maximise power output and ultimately maximise revenue from CH₄ extraction.



SECTOR

 Landfill

APPLICATIONS

- Landfill gas field optimisation
- Landfill gas energy calculation
- Flare / engine output estimation

FEATURES

- Certified: ATEX, IECEx, CSA, MCERTS and UKAS calibration (ISO17025)
- Measures % CH₄, CO₂, O₂
- Records static and differential pressure
- Choice of user settings and simple gas reading function
- Calculates gas flow (m³ / h) and calorific value (KW or BTU) (external flow device and Gas Analyser Manager software required)
- CH₄ and CO₂ accuracy ±0.5% after calibration
- Modular and upgradeable
- 3 year warranty
- Robust design for market leading reliability
- Datalogging and profiling function
- Up to 6 gases monitored

BENEFITS

- Aids balancing of gas field
- Real time adjustments can be made
- Maximise power output from site
- Easy to read
- No need for self-certification of anemometer
- Maximise revenue from CH₄

OPTIONS (AVAILABLE AT PURCHASE OR LATER)

- H₂ compensated CO
- Choice of additional gases including H₂S to 10,000ppm
- GPS / field navigator
- Gas Analyser Manager software for data download
- External gas flow devices: anemometer (ATEX) / Pitot tubes
- Bluetooth communications for data download

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TECHNICAL SPECIFICATIONS

| POWER SUPPLY | | | | |
|--|---|--|--------------------------------------|--------------------------------------|
| Battery type | Rechargeable nickel metal hydride battery pack (not user replaceable) | | | |
| Battery life | Typical use 8 hours from fully charged | | | |
| Battery charger | Separate intelligent 3A battery charger powered from mains supply (100-240V) | | | |
| Charge time | Approximately 4 hours from complete discharge | | | |
| GAS RANGES | | | | |
| Gases measured | CO ₂ and CH ₄ | By dual wavelength infrared sensor with reference channel | | |
| | O ₂ | By internal electrochemical sensor | | |
| | CO (H ₂ compensated), H ₂ S, NH ₃ and H ₂ (optional) | By internal electrochemical sensor | | |
| | A full range of internal gas cells can be specified at the time of manufacture | | | |
| Standard gas cells | Cell | Range | Typical accuracy* (range : accuracy) | Typical accuracy* (range : accuracy) |
| | CH ₄ | 0-100% | 0-70% : ±0.5% (vol) | 70-100% : ±1.5% (vol) |
| | CO ₂ | 0-100% | 0-60% : ±0.5% (vol) | 60-100% : ±1.5% (vol) |
| | O ₂ | 0-25% | 0-25% : ±1.0% (vol) | |
| Optional gas cells | Cell | Range | Typical accuracy* | |
| | CO | 0-500ppm | ±2.0% FS | |
| | CO | 0-1,000ppm | ±2.0% FS | |
| | CO | 0-2,000ppm | ±2.0% FS | |
| | CO (H ₂)** | 0-2,000ppm | ±1.0% FS | |
| | H ₂ S | 0-50ppm | ±1.5% FS | |
| | H ₂ S | 0-200ppm | ±2.0% FS | |
| | H ₂ S | 0-500ppm | ±2.0% FS | |
| | H ₂ S | 0-1,000ppm | ±2.0% FS | |
| | H ₂ S | 0-5,000ppm | ±2.0% FS | |
| | H ₂ S | 0-10,000ppm | ±5.0% FS | |
| | NH ₃ | 0-1,000ppm | ±10.0% FS | |
| | H ₂ | 0-1,000ppm | ±2.5% FS | |
| | *Typical accuracies | All typical accuracies quoted are after calibration plus accuracy of calibration gas used. | | |
| **Hydrogen compensated carbon monoxide | Hydrogen cross gas effect on carbon monoxide approximately 1%. Do not use where hydrogen is in excess of 10,000ppm | | | |
| Response time, T90 | Range | Response time | | |
| | CH ₄ | ≤10 seconds | | |
| | CO ₂ | ≤10 seconds | | |
| | O ₂ | ≤20 seconds | | |
| | CO | ≤30 seconds | | |
| | H ₂ S | ≤30 seconds | | |
| | NH ₃ | ≤90 seconds | | |
| | H ₂ | ≤90 seconds | | |
| PUMP | | | | |
| Flow | 550 ml / min typically | | | |
| Flow fail point | -200 mbar vacuum- user settable | | | |
| Maximum vacuum restart | -375 mbar approximately with flow rate of approx 80ml / min | | | |

TECHNICAL SPECIFICATIONS CONTINUED

| FACILITIES | |
|---|---|
| Temperature measurement | -10°C to +75°C with optional probe |
| Temperature accuracy | ±0.5°C with optional probe |
| Flow measurement | Via Pitot tube, orifice plate, or anemometer |
| Energy measurement | Calculated using gas concentrations, flow, and temperature readings |
| Alarm | User selectable alarms |
| Communications | Via USB lead or wireless Bluetooth* |
| Relative pressure measurement | ±500 mbar |
| Relative pressure accuracy | ±4 mbar typically (should be zeroed before reading) to ±15 mbar max |
| Barometric pressure measurement | 500 to 1500 mbar, ±5 mbar accuracy |
| GPS sensor | Location and positioning |
| Available memory | 2,000 IDs *, 4000 readings, 2,000 events * |
| ENVIRONMENTAL CONDITIONS | |
| Operating temperature range | -10°C to +50°C |
| Atmospheric pressure range | 700 to 1200 mbar |
| Relative humidity | 0-95% non condensing |
| Case seal | IP65 |
| PHYSICAL | |
| Weight | 1.6kg |
| Size | L 220mm, W 155mm, D 60mm |
| Case material | High impact ABS composite with rubber over-moulding. |
| Keys | Alpha-numeric keypad with "tactile" membrane |
| Display | Ultra-clear high resolution 4.3" full colour TFT |
| Connections | Colour coded gas inlet, outlet and pressure ports. Waterproof USB port, anemometer and charger / temperature probe connections. |
| Gas sample filters | External user changeable 2.0µm ptfе water traps |
| CERTIFICATION RATING | |
| ATEX / IECEx | II 2G Ex ib IIA T1 Gb (Ta = -10°C to +50°C) |
| MCERTS | MC / 130239 |
| ISO17025 | Calibration to UKAS certificate number 4533 |
| CSA | Ex ib IIA T1 (Ta = -10°C to +50°C) (Canada), AEx ib IIA T1 (Ta = -10°C to +50°C) (USA) |
| * Gas Analyser Manager software required. Bluetooth is an optional extra. | |
| Important note: The information in this document is correct at the time of generation. We do however, reserve the right to change the specification without prior notice as a result of continuing development. | |

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