

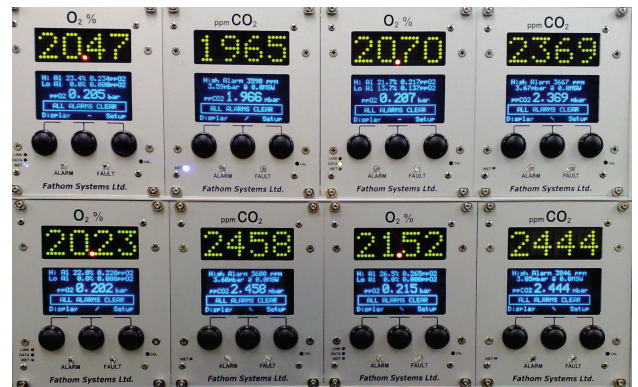
iGA | intelligent Gas Analysers

O₂ Master , CO₂ Slave, Sample Gas Processor, Sample Gas Manifold

**COMMERCIAL DIVE SYSTEM PRODUCTS**

Key Features:

- Safety critical control and instrumentation for O₂ & CO₂ measurement
- Compliant with DNV-OS-E402 accuracy requirements to a depth of 300MSW for both O₂ and CO₂ sensors
- VFD display for diagnostics and systems status
- Multi-coloured visual and audible alarm indication
- Simple, semi-automatic, calibration aid in maintaining accuracy



Product Overview:

Fathom Systems' Gas Analysers are highly accurate gas sensing products used primarily to monitor the oxygen and carbon dioxide content of chamber and diving bell breathing atmospheres. With in-built audible voice alarm and automatic calibration, this range of products provides essential safety critical control and instrumentation for commercial diving operations including:

- Oxygen concentration (pO₂) – percentage concentration of standard atmospheric pressure.
- Carbon dioxide concentration (ppmCO₂) – parts per million concentration of standard atmospheric pressure (10,000 ppm = 1%).

- Partial pressures – displayed in bars or millibars (mbar) as appropriate.
- Gas flowrate – displayed in millilitres per minute (ml/min).
- Depth – measured in metres of seawater (MSW).
- Pressure – measured in bars relative to 1-atmosphere (1 bar = 10⁵ Pa).
- Time – measured in hours, minutes and seconds.
- Network connectivity across the range enables central control and data management for analysis.

O₂ Master Gas Analyser Module

- O₂ Master connects to slave modules via proprietary RS485, iNET bus
- Paramagnetic O₂ sensor is non-consumable, with a quick response time and indefinite service life
- Measures O₂ as percentage concentration of standard atmospheric pressure and partial pressure
- Range: 0-25% O₂ Surface Equivalent
- Accuracy: ±0.05% O₂ compensated

CO₂ Slave Gas Analyser Module

- Optional module, but is typically installed with standard iGA configurations and connects via iNET bus
- Uses Non-Dispersive InfraRed (NDIR) sensor for accuracy, quick response and indefinite service life.
- Fully helium tolerant, with sensor separation from sample gas by sapphire optical windows
- Range: 0-5000ppm CO₂
- Accuracy: ±25ppm compensated

Sample Gas Processor

- Slave module used to manage sample and calibration gas distribution to O₂ and CO₂
- Connects via iNET bus
- Available with 4, 5, or 6 gas inputs for calibration or sample analysis. Optional sample pump for chambers with insufficient pressure for sample analysis.

Sample Gas Manifold

- Used in conjunction with the sample processor and allows six additional sample inputs.
- The manifold uses solenoid valves to switch between gases and incorporates a proportional flow control valve and mass-flowmeter

Mechanical

- Front Panel 106mm wide (21 HP) x 128mm high (front panel)
- 250mm deep (excluding connectors), 350mm (including connectors)
- Weight: 1.6kg to 3kg – depending on module type
- Gas Connections: Rectus Series 21 Quick connect couplings
- Input Pressure: 0.5barg to 1.0barg into sample processor
- Gas flowrate: 50ml/min to 100ml/min (80ml/min recommended)

Electrical

- AC Supply voltage: 90-260V AC – if used with Fathom systems 24V DC Supply
- DC Supply voltage: 24V DC ±10% (regulated & smoothed – 100mV ripple max.)
- Supply current: complete rack – less than 2A @ 24V DC.
- Power consumption: 50W maximum – complete rack

Electronics Set-up Options

- Front 10MBit (10BaseT)
- I/O Ports: 1 x RS232, 1 x RS485, 2 x isolated analogue outputs, 3 x Digital inputs
- Audio Output:
 - 4W alarms power (internal speaker), 4W external speaker (8 ohms)
- Non-volatile storage of system settings and calibration data.
- Battery-backed real-time clock & calendar
- Elapsed time stopwatch

Environmental

- Operating Temperature: 0°C to 40°C (to retain sensor accuracy)
- Storage Temperature: -10°C to 70°C
- Operating Humidity: 0%RH to 90%RH (non-condensing)

