



Hidex Sense Gas mixer unit

425-387 Hidex Sense Gas mixer unit

Simultaneous regulation of ${\rm CO_2}$ and ${\rm O_2}$ environment enables hypoxia research, long-term cell proliferation measurements, and other biological studies of anaerobic organisms.

Hidex Sense environment control system consists of a high precision digital gas flow mixer connected to the enclosed Sense measurement chamber. The control unit is equipped with a touch screen to adjust settings and to monitor the gas concentrations.

The unit controls CO_2 and O_2 concentration by measuring and mixing CO_2 and Nitrogen continuously. Nitrogen is only needed for oxygen control. The actual gas flow and concentrations are automatically recorded by the mixer unit, from where these can be displayed on the instrument computer, or loaded to a USB device.



The system features special functionality to reduce gas consumption and fast recovery time after opening the microplate loading lid. An external audio alarm can also be connected to the unit in case the conditions require operator attention.

CO₂/O₂ Controller Setup

The controller regulates CO_2 and O_2 by infusing pure CO_2 and N_2 into the Sense measurement chamber, obtaining an adjustable CO_2 concentration in the range 0-20%, and an O_2 concentration in the range 1-20%.

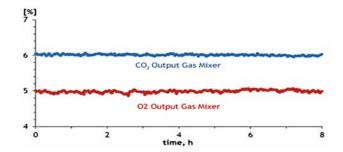
The controller samples the $\rm CO_2$ and $\rm O_2$ gas concentrations every 30 second from the enclosed Sense microplate measurement chamber. The sampled gas is dehumidified with a membrane dryer (optional).



CO₂/O₂ Consumption and stability

The typical gas consumption is exceptionally low for a microplate reader, less than 0.5 liters/minute to keep CO_2 at a 5% steady state, and 7-10 liters/minute of Nitrogen to keep O_2 at a 1% steady state. Thus e.g. a 40 Kg CO_2 tank lifetime is estimated to 30 days of continuous use.

The graph shows typical CO_2 and O_2 concentration stability.





Sense CO₂/O₂ Controller Specifications

Operation mode Adds pure CO, and/or N, to the measurement chamber

Concentration range CO₂: 0-20%; O₃ 1-20%

 $\begin{array}{ccc} {\rm CO_2~accuracy} & 0.1\% \\ {\rm O_2~accuracy} & 0.1\% \\ {\rm Set~point~resolution} & 0.1\% \\ \end{array}$

 $\begin{array}{lll} \mbox{Min/Max Pressure for CO}_2 \mbox{ input} & 700 \mbox{ mmHg to 5 barg (72.5 psig)} \\ \mbox{Min/Max pressure for N}_2 \mbox{ input} & 700 \mbox{ mmHg to 1.8 barg (26.1 psig)} \\ \mbox{Max infusion rate for CO}_2 & 12 \mbox{ l/min @ 5 barg (72.5 psig)} \\ \mbox{Max infusion rate for N}_2 & 27 \mbox{ l/min @ 1.8 barg (26.1 psig)} \\ \end{array}$

Outlet pressure Ambient

CO₂ Sensor Non dispersive Infrared (NDIR) dual wave length detector

O₂ Sensor Optical sensor

Sensor life time 10 years for CO₂ sensor, 5 years for O₂

CO₂ and O₃ Input Gas connectors 6 mm OD push in fittings

Output Gas connector Panel Mount Connector, 3.2 mm ID Tubing

Suction pump Integrated pump for gas sampling

Gas sensor input connector Panel Mount Connector, 3.2 mm ID Tubing

Dimensions 130x158x104 mm

Weight 1600 g

User interface Touchscreen display

Sensor calibration mechanism Comparison with external meter, or alternatively span gas

Recommended sensor calibration CO_2 one year, O_2 one year

period

Gas dryer (Optional) To dehumidify the sampling gas prior to concentration

measurement, needed only if the controlled volume is humid

Alarms Buzzer, flashing and External Alarm Connector

Data logging RS232 and MINI USB ports for data logging trough Okolab

DATA LOG software or any third party software



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Today more than 3000 Hidex precision instruments are at service in leading laboratories worldwide as well as in some of the hardest conditions on the planet. Jungles and deserts, oil platforms and ocean going vessels – even submarines are no challenge for Hidex instruments.

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