

Dissolved Gas Extraction Unit

Fast, continuous measurements of dissolved gases in liquids

Features and Benefits

- Simultaneous gas-phase concentration and dissolved gas molar measurements of a variety of gases*
- Low power requirements (45 W)
- Easy to service in the field
- Lightweight (16 kg)
- Internal datalogger



Introduction

The Dissolved Gas Extraction Unit (DGEU) allows continuous concentration measurements of dissolved gases in water and other liquids in real time*. The DGEU extracts gas from a liquid stream through an internal hydrophobic micro-porous membrane (comprised of polypropylene hollow fibers). Internal water and gas pumps and mass flow controllers allow precise control of flow rates and pressures of the liquid in the DGEU and the strip gas which is sent to the gas analyzer. By accurately controlling the water flow rate through the membrane, gas pressure on the outside of the membrane, and water pressure on the inside of the membrane, the DGEU is able to generate precise and reproducible results.

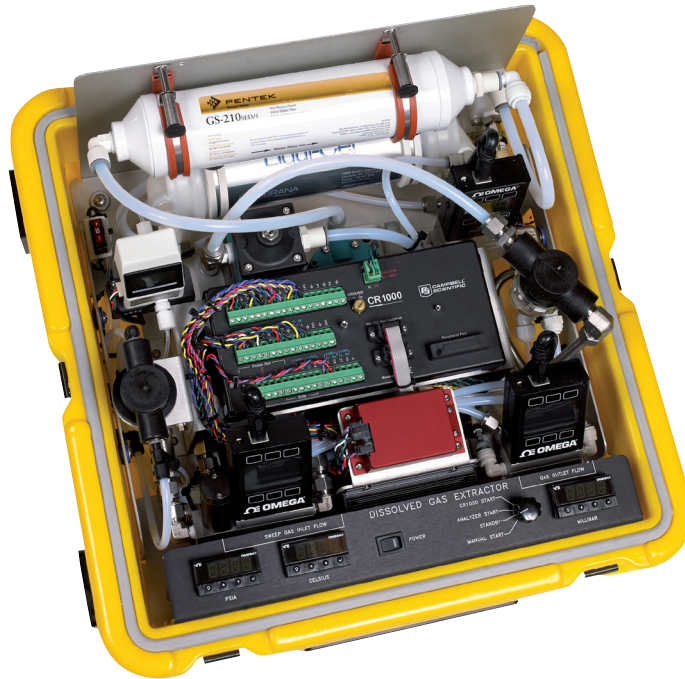
Measuring the gas flow rates in and out of the DGEU, allows the gas-phase concentrations (parts per million) to be easily converted into dissolved gas concentrations (nanomolar).

The Unit is controlled via software on selected LGR analyzers to provide autonomous measurements in the field. An internal multi-channel data logger records all parameters reported by the DGEU and can also record analog signals from other instruments in a single data file.

Applications

This novel tool, when combined with one or more LGR trace gas analyzers, can replace time consuming head-space equilibration processes and complex shower-head systems. This allows new research opportunities, including measuring gas seepages from ocean floor; monitoring water quality of oceans, lakes, rivers, and fish-farms; quantifying surface-gas exchange processes in lakes and monitoring dissolved gases in wastewater treatment plants.

*requires use of trace gas analyzer (sold separately)



Performance Specifications

Sampling Conditions:

Liquid flow: 1 to 2 slpm

Temperature: 5-50C

Sweep gas pressure: 0-1000 mBar(g) → for MFC limit

Sweep gas and gas output flow: user can adjust up to 1 slpm

Waste output flow: user can adjust up to 0.5 slpm

All gas and liquid parameters recorded on internal data logger

Datalogger signal inputs/outputs:

Analog inputs: 16x single-ended (8 differential) channels

- 4 single-ended channels reserved for Gas Analyzer outputs
- 7 single-ended channels dedicated for DGEU parameters
- 4 single-ended channels available for user external inputs

Analog outputs: 3 available for user

Digital I/O: 6 available for user

Interface protocols supported (through serial connections):

PakBus, Modbus, TCP/IP, DNP3, FTP, HTTP, SMTP

Connections:

Sweep gas inlet/outlet to gas analyzer: 1/4"(OD) Swagelok®

Water inlet/outlet: 3/8" (OD) Swagelok®

Power Requirements:

10-30 VDC, 45 watts

Dimensions:

18.75"x 18.88"x 10.69"

Weight:

16 kg

Ordering Information

Portable model: **DGES**

(Analyzer sold separately)

Replacement Parts

915-9211-0000: membrane contactor

915-9216-0000: liquid pump

915-9215-0000: gas pump

915-9314-0000: water filter

908-0011-9005: gas inlet filter

915-9315-0000: ventilation filter

Options

2-year warranty extension