

The Barocycler[®] HUB440

Bench-top High Pressure Generator



The Barocycler HUB440 is a compact, portable, bench-top, ultra-high pressure generator that uses compressed air-driven pressure intensifier to generate fluid pressure up to 58,000 psi (~4 kilobar) with an input compressed air pressure of just 130 psi. The HUB440 can be operated via a simple front panel, or controlled using the integrated Data Acquisition and Control Module for dynamic pressure control and connectivity to external devices.

Features & Benefits of the HUB 440 Pressure Generator

- Computer control via the USB-linked data acquisition and control module (DAC), enables unattended operation of the equipment
- Fast pressurization and depressurization rates
- Optional sub-millisecond pressure-jump kit
- Rugged open metal enclosure allows for easy reconfiguration
- Direct control of pressure increase/decrease rate facilitates unlimited ramping up and down
- Data logging in MS Excel compatible (CSV) files for future analysis and record keeping
- Multi-stroke “Pump mode” for pressurizing large volume vessels
- Static pressure control using built-in PID algorithm
- Several analog and digital inputs and outputs for connectivity with external equipment
- Uses water as the pressure medium, no oils or anti-corrosion additives needed
- Wetted high pressure areas constructed from stainless steel, ceramic and advanced engineering plastics
- Hub 880 provides industry-standard high pressure port for connecting peripheral equipment
- Flexible and highly customizable control software

Applications of High and Ultra-High Pressure

- Tissue homogenization and cell lysis for the extraction of proteins, nucleic acids, and metabolites.
- Organelle isolation.
- In-vivo pressure effects
- Studies of piezophilic organisms
- Enhanced enzymatic digestion of proteins (proteases, glucosidases).
- Dynamics of protein unfolding and refolding.
- Pressure jump experiments
- Pressure-perturbation spectroscopy: fluorescence, absorbance, EPR, FTIR, NMR, and CD
- Phase transitions in biological membranes, micelles, polymers
- Leak testing and detection

Specifications of the Barocyler HUB880

- Maximum operating pressure: 58,000 psi (4 Kbar)
- Electrical power: 24VDC, 5A; universal switching power adapter included
- Required compressed air input pressure: 130 psi
- High pressure output port type: Standard 9/16-18 threaded female high pressure port
- Contact-closure or TTL digital trigger I/O for external control
- Weight: 55lbs (25kg)
- Dimensions: 17" X 12" X 9" (43 x 31 x 23 cm)
- Warranty: 1 Year included, Extended Warranty plans are available

PBI supports the HUB440 with a family of products including temperature controlled pressure vessels, high pressure valves, and pressure control software. Whether you are an experienced user of high pressure equipment, or just entering the high pressure field for the first time, PBI's experienced Research, Engineering, Sales and Support staff will help to ensure you are getting the setup you require for your experimental needs.

Set-up and Training Packages are also available

Acknowledgement

Pressure BioSciences is extremely proud to acknowledge the guidance and support of Dr. Wayne L. Hubbell (member of the US Academy of Sciences and Distinguished Professor of Chemistry and Biochemistry and Jules Stein Professor of Ophthalmology at UCLA) and his team in the design and development of our ultra-high pressure HUB440 and HUB880 instruments and our EPR high pressure ceramic cells. With their help, PBI is now able to offer researchers new methods to study proteins under ultra-high pressure using Electron Paramagnetic Resonance (EPR) and other spectroscopic techniques, such as Circular Dichroism (CD). We believe information from these studies will provide new insights into such important areas as biomarker discovery and rational drug design, and play an important role in the discovery process that lies ahead in the exciting field of protein science.

V3: 021217



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