PRESSURE PULSATION MYOGRAPH SYSTEM – 112PP

Pulsatile pressure & flow studies of small vessels · Product no. 101010

- **Pulsatile flow simulation** – 50–600 BPM with pressure differences up to 60 mmHg, mimicking heartbeats.
- **Small vessel precision** – mounts vessels >40 µm diameter, 1–10 mm in length.
- **Longitudinal force transducer** – normalizes vessel stretch alongside pressure control.
- **Direct data streaming** – MyoVIEW tracks up to 18 parameters, including shear stress and vascular resistance.

The Pressure Pulsation Myograph System – 112PP studies the structure and function of isolated small vessel segments (diameter >40 µm) under near-physiological conditions. Vessel diameters can be measured in response to pharmacological and physiological stimuli, and the system simulates pulsations between 50 and 600 BPM with a pressure difference up to 60 mmHg.

A built-in heating system maintains chamber temperature, eliminating the need for continuous, often costly superfusion. The chamber cover includes ports for superfusion, rapid draining and filling, cumulative drug addition and oxygenation, and the chamber itself is acid-resistant stainless steel for easy cleaning.

Measurements are continuously recorded by MyoVIEW dimension-analysis software. Because of the technique’s nature, physiological responses such as the myogenic response and flow-mediated dilation can be examined, alongside compliance and stiffness testing across programmable pressure amplitudes, durations and frequencies.

MyoVIEW collects vessel wall thickness, changes in vessel and lumen diameter, intravascular pressure and other calculated parameters such as shear stress and vascular resistance – setting pressure myography apart from standard organ bath techniques. The FlowMeter – 162FM can be added to measure flows between 15–4000 µl/min in non-pulsatile modes.

WHY CHOOSE 112PP

1. **True pulsatile simulation**
   50–600 BPM with up to 60 mmHg pressure difference, mimicking heartbeats.
2. **Small vessel range**
   Mounts vessels >40 µm diameter, 1–10 mm in length, on glass or steel cannulas.
3. **Longitudinal force transducer**
   Normalizes vessel stretch independent of pressure control.
4. **Up to 18 measured parameters**
   Shear stress, vascular resistance, wall thickness and more via MyoVIEW.
5. **Flow or steady pressure**
   Switch between perfused flow and blind-sac steady-pressure modes.
6. **Compliance & stiffness testing**
   Program pressure amplitude, duration and frequency for atherosclerosis-relevant protocols.

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System overview & applications

SYSTEM OVERVIEW

A small-volume acid-resistant chamber pairs in-line pressure transducers with a longitudinal force transducer, letting researchers apply pulsatile or steady transmural pressure while MyoVIEW tracks diameter and derived vascular parameters in real time.

Chamber & mounting

- 3.1 ml chamber, acid-resistant stainless steel
- Vessel size >40 µm diameter; XYZ alignment
- Glass or stainless steel cannula mounting
- Pulse rate 50–600 BPM, programmable

Pressure, force & output

- Pressure range 0–250 mmHg, ±0.5 mmHg stability
- Longitudinal force: ±200 mN, 0.01 mN resolution
- Heated 250 ml closed-circuit reservoir
- USB 2.0, 4 analogue channels, ±2.5 V

APPLICATIONS

Built for researchers who need pulsatile as well as steady pressure control – where mimicking the heartbeat itself is part of the protocol.

Myogenic & flow-mediated response
Study physiological reactivity under near-physiological pulsatile pressure.

Vascular compliance & stiffness
Apply cyclic pressure changes to quantify compliance and atherosclerosis-relevant stiffness.

Pharmacological testing
Apply agents to the superfusate or luminal solution.

Shear stress & resistance analysis
Derive vascular resistance and shear stress alongside diameter tracking.

Research areas

Hypertension | Flow-mediated dilation | Atherosclerosis & stiffness | Endothelial dysfunction | Myogenic responses | Vascular remodeling

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Technical specifications & configuration guidance

KEY SPECIFICATIONS

CHAMBER	Chamber volume (min)	**3.1 ml**
	Chamber(s)	**1**
	Chamber material	**Acid-resistant stainless steel**
	Vessel size	**>40 µm**
	Vessel alignment	**X, Y, Z**
	Mounting type	**Cannulas**
	Pulse rate	**50–600 BPM**
TEMPERATURE	Range	**15.0 to 50.0 °C**
	Resolution	**0.1 °C**
	Stability	**±0.2 °C**
	Heating	**Yes**
TRANSDUCER FORCE	Output reading	**mN**
	Range	**±200 mN**
	Resolution	**0.01 mN**
TRANSDUCER PRESSURE	Output reading	**mmHg**
	Range	**0–250 mmHg**
	Stability	**±0.5 mmHg**
	Resolution	**0.1 mmHg**
RESERVOIR	Heated	**Yes**
	Capacity	**250 ml**
	Pressure circuit	**Closed, 1 bar max.**
OUTPUT	Data communication	**USB 2.0**
	Analogue output channels	**4**
	Analogue output range	**±2.5 V**

CONFIGURATION GUIDANCE

The right 112PP configuration depends on vessel size, pulsatile vs. steady protocol, and flow measurement needs.

NEED-TO-HAVE

MyoVIEW 5 Acquisition, inverted microscope (Zeiss or Nikon), stage micrometer, high-speed monochrome camera, computer package, vacuum package and heating bath circulator.

FLOW & MOUNTING OPTIONS

FlowMeter 162FM (non-pulsatile modes), glass or stainless steel cannula sizes, and a peristaltic pump for perfusion protocols.

SERVICE & TRAINING

Installation kit, spare pressure transducer, service & maintenance agreement and extended warranty.

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