



The multi-functional Laser Doppler System

for microvascular perfusion measurements

The PeriFlux System 5000 has a main unit which can be equipped with up to four function units such as laser Doppler, temp and tcpO₂/pCO₂ units.



PeriFlux System 5000 equipped with 2 laser Doppler units, 1 temp unit, 1 small angled thermostatic laser Doppler probe, 1 skin temperature sensor and 1 probe for miniholders.



PeriFlux System 5000

The PeriFlux System 5000 is the fifth generation of Perimed's PeriFlux instrument range for blood perfusion measurements. It has the output parameters required by the general user and complements the advanced PeriFlux System 4000 which is the number one choice for the advanced researcher.

The PeriFlux System 5000 is a compact, easy-to-use, multi-functional system. It consists of one Main Unit that is equipped with up to 4 Function Units. There is complete freedom to install the appropriate Function Units required for your application and complement it with a selection from our wide range of standard/custom-made probes. Combining different functions in one instrument saves space, reduces cost and increases user-friendliness.

Principle of Laser Doppler

Light is transmitted to the tissue via a fibre-optic probe. When this light hits moving blood cells, it undergoes a change in wavelength (Doppler shift). The magnitude and frequency distribution of these changes are directly related to the number and velocity of blood cells, i.e. the blood perfusion. Measurements are expressed in arbitrary Perfusion Units (PU). Full linear correlation to absolute perfusion values is achieved using Perimed's innovative analysis technology (including a linearization function to avoid underestimation in highly perfused tissues) and calibration using automatic instrument zeroing and Perimed's Motility Standard.

PeriFlux 5001 Main Unit

The PeriFlux 5001 Main Unit can host up to four Function Units of different types. The Main Unit has a digital output for connection to Perimed's dedicated software, PeriSoft, or directly to a printer. It also has an analog output for connection to pen recorders or computer systems. Alternatively it can be used stand-alone, without external data acquisition systems.

Function Units

The Function Units are designed to meet specific needs in different applications. To optimize the system, the customer can choose the appropriate unit to meet particular requirements. Additional Function Units can easily be subsequently installed by the user.

PF 5010 LDPM Unit (Laser Doppler Perfusion Monitor)

For real-time microvascular perfusion measurements. The system uses the PeriFlux System 4000 range of laser Doppler probes to allow measurements in virtually all tissues, invasively or non-invasively.

PF 5020 Temp Unit

For temperature provocation and/or temperature measurements. It can be used to stabilize the skin temperature, or for local heat provocation to cause reactive hyperaemia. Thermostatic laser Doppler probes are available to apply heat and simultaneously measure the microvascular response.

PF 5040 $tcpO_2$ / pCO_2 Unit

For transcutaneous monitoring of oxygen and carbon dioxide. Application areas include vascular and wound diagnostics, plastic surgery, hyperbaric medicine and ortopaedic surgery. See separate pamphlet.

PeriSoft for Windows

Perisoft for Windows can record, analyze, export and print data from Perimed's large range of PeriFlux instruments and other similar instruments. It creates several reports including three dimensional FFT analysis. For more information see separate pamphlet.

Local printer

A local printer is available for the user without need for data storage. The printout contains curves and numerical data.

Main Unit

Classification CE approved according to MDD directive 93/42/EEC. Electrical Safety Standard EN 60 601-1, Class I. EMC Standard EN 60601-1-2.

Output

Digital RS-232 output to computer with PeriSoft for Windows.

Analog -10 to +10 V.

Local printer Seiko DPU-3445

Mains Selectable - 115 or 230 V. 50 or 60 Hz.

Power cons. 60 VA with four modules.

Dimensions 300 (W) x 320 (D) x 105 (H) mm.

Weight 8.6 kg with four modules.

Function Units

PF 5010

LDPM Unit

For one laser Doppler perfusion probe per unit. Perfusion (Flux) and TB (Total Backscattered light). Solid-state diode laser: 780 nm. Maximum power output at probe tip is 1 mW.

Outputs

Laser

Classification

EN 60825-1 class 1 (CFR 1040.10 Class I). Type CF.

Display

3 digit LED display.

PF 5020

Temp Unit

For one or two Thermostatic Probes/Probe Holders/ Measurement Sensors per unit.

Measured Temperature 1, 2.

Output

Heating Range

26-44°C; increments of 1°C. Accuracy $\pm 0.5^\circ\text{C}$.

Sensor Range

30-40°C, Accuracy $\pm 0.3^\circ\text{C}$, Repeatability $\pm 0.1^\circ\text{C}$. 0-30°C and 40-50°C, Accuracy $\pm 0.5^\circ\text{C}$, Repeatability $\pm 0.1^\circ\text{C}$.

Classification

Electrical Safety Standard: Class 1 Type BF.

Display

3 digit LED display.

PF 5040

$tcpO_2$ / pCO_2 Unit

For measurement with one electrode per unit.

Electrodes

Combined $tcpO_2$ / pCO_2 electrode or single $tcpO_2$.

Output range

pO_2 : 0-1999 mmHg (0-267 kPa).

pCO_2 : 0-200 mmHg (0-26.7 kPa).

Classification

Electrical Safety Standard: Class 1 Type BF.

Temp. settings

Range 37-45°C; increments of 0.5°C.

Display

3.5 digit LED display. *Specifications subject to change*