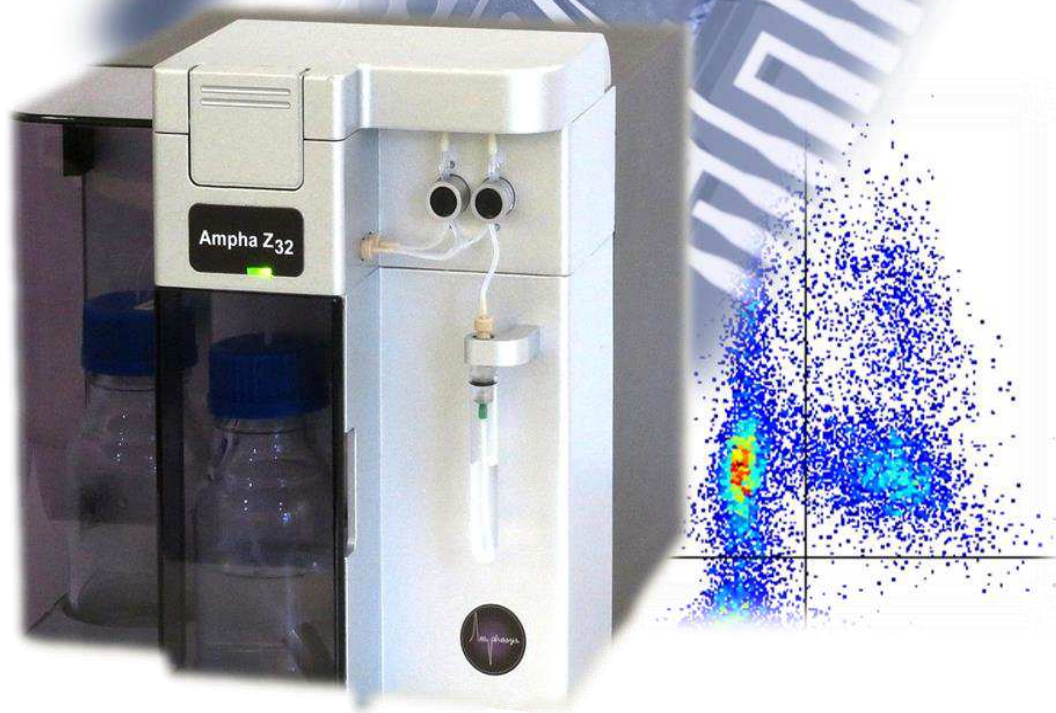




Ampha™ Z32



reinventing single **cell analysis**

Technology working for you



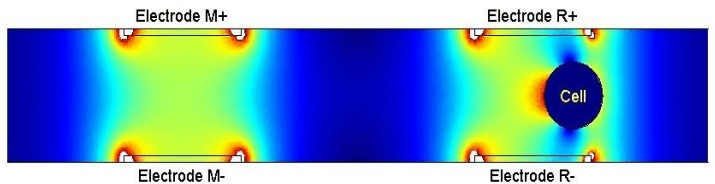
AmphaChip – Patented Technology

- Different channel dimensions for maximal sensitivity
- Semi-disposable, for several hundreds of analyses
- Suitable for any cell type
- Small sample volumes

Making complex things simple

Amphasys reinvents with its cutting-edge technology single cell analysis by simplifying the whole analysis process while providing high-content data of the analyzed cells. This is achieved with multi-frequency impedance analysis in the radiofrequency range (0.1 - 30 MHz), a label-free approach that provides many advantages as compared to conventional, fluorescence-based flow cytometry.

There is no longer a need for complex and cumbersome sample preparation steps as is necessary with classical methods. Thanks to the lack of optical components, such as microscopes or lasers, the system is mobile and ready to use within a minute, even in the field.



The heart of the cytometer consists of a microfluidic chip supplied with microelectrodes. This high-sensitivity sensor measures changes of the electrical resistance of the fluidic medium when particles or cells pass through the applied AC electric field. Enumeration and size, as well as information about the physiological conditions of the analyzed cells are gathered from the processed impedance signals.

The simple solution for your routine cell analysis applications

Ampha Z₃₂ – The new benchmark of impedance-based flow cytometry

Amphasys' new generation flow cytometer is a portable plug & play device designed to blend simplicity with flexibility. Latest generation digital signal processing electronics are specifically tailored to Amphasys' high-sensitivity chips, such that best-of-class impedance analysis on single cells is achieved.

The small dimensions of Ampha Z₃₂ and the robustness of the electrical measurement provide a mobile and portable solution for any kind of cell analysis, be it in your laboratory or outside in the field. Designed initially for research purposes, Ampha Z₃₂ is now also particularly suitable for routine applications, where detailed, high-quality cell analysis and ease-of-use are major requirements.



Controlled microfluidics

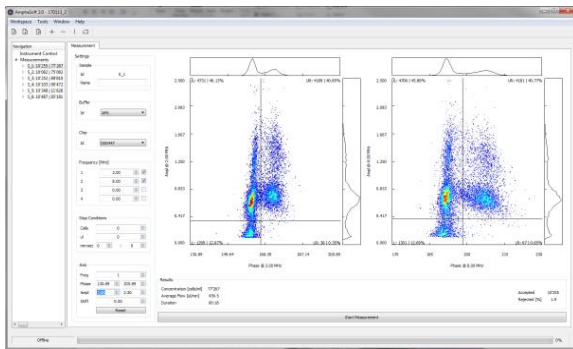
Interfacing microfluidic chips has always been a challenge, requiring high-end precision pumps and flow control devices for accurate and reproducible analyses. The robustness of the electrical measurement combined with the patented chip design and sophisticated data acquisition and processing algorithms enables the use of a rather simple peristaltic pump. Alongside, Ampha Z₃₂ continuously monitors the amount of fluid that passes through the chip and thus permits accurate determination of cell concentrations from whole cultures or subpopulations. This simple fluidic system can be coupled to a bioreactor, for example, complementing Amphasys' label-free approach and providing an elegant tool for in-line cell analysis applications.



Fluidic system

- Impressively simple
- Can be adapted to any type of application
- Low maintenance
- Suitable for in-line applications

Simply effective...



AmphaSoft

The new AmphaSoft software intuitively combines instrument control and data acquisition, as well as realtime data display and offline data analysis. Therefore, no additional tools are needed for detailed data analysis. For routine analyses, Windows-based AmphaSoft provides a worklist facilitating repetitive analyses with changing parameters. Reports are generated in html- and csv-format, for stand-alone use or integration into proprietary templates, respectively.

Your application

Ampha Z₃₂ has been used for countless research and industrial applications with any kind of cells, including bacteria and yeasts, animal and human cell lines as well as pollen and other plant cells. You can focus on the important tasks and run your routine analyses fully unattended using the Amphasys autosampler.

Typical analyses comprise, but are not limited to:

- Cell size and morphology studies
- Viability determination
- Toxicology studies
- Cell differentiation
- Apoptosis
- In-line cell monitoring



Are you ready to improve?

Amphasys' new impedance flow cytometer Ampha Z₃₂ provides a complementing technology to conventional fluorescence-based flow cytometers (FACS).

Ampha Z₃₂ is the method of choice for detailed cell analysis demanding portable solutions, ease-of-use and quick results, as well as for all those applications in which optical systems fail because cell labeling is either not available, not applicable or disturbed by external factors.



Free to operate...

The mobility kit for Ampha Z₃₂ enables you to perform your analyses wherever you like. A hard-top transport case protects the instrument from mechanical exposures, while the car adapter and/or the rechargeable Li-Ion battery permit you to work for the whole day independently from an electricity network. The robust device does not need any calibration, thus, just unpack the instrument, plug it to your car or the battery and start your analyses.

Ampha Z₃₂ specifications

Impedance chip Available sensing channel dimensions	15 x 15 µm, 30 x 30 µm, 50 x 50 µm, 80 x 80 µm, 120 x 120 µm or 250 x 250 µm (depending on application requirements)
Impedance measurement Frequency range Frequency selection	0.1 MHz – 30 MHz Up to 4 different frequencies simultaneously
Analysis range Sample volume Concentration range Particle size	50 – 2000 µl (typically) 1 x 10 ³ to 1 x 10 ⁷ cells/ml 1 – 150 µm
Fluidics Sample flow rate Pump Labware compatibility	5 – 2500 µl/min (depending on channel dimension) Peristaltic pump with disposable pump head Standard 5 ml polystyrene round-bottom tubes (Falcon® 352058 or Sarstedt 55.1579)
Operating system	Laptop with Windows® 7 or 10 15" TFT LCD display I5 or i7 QuadCore processor 128 GB SSD
Dimensions & weight Dimensions (W x D x H) Weight	255 x 275 x 353 mm 8.4 kg
Operating environment Temperature Humidity Power	16° – 32°C 10% – 90% relative non-condensing 24V _{DC} ± 10%, max. 3A, < 90 W



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