

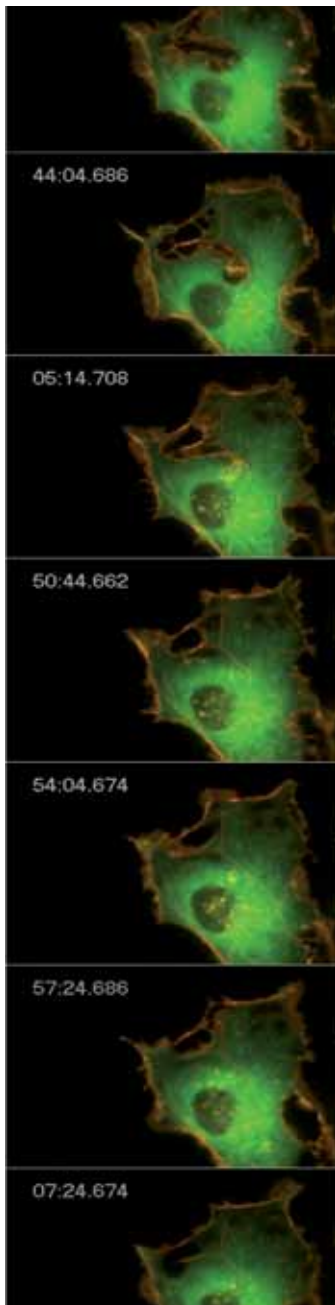
VisiScope Cell- Explorer

Live Cell Imaging
System

VisiScope Cell Explorer - Live Cell Imaging System

The New Challenge in Digital Fluorescence Microscopy: Multidimensional Acquisition and Analysis of Living Cells

Modern cell biology on living cells and tissues has reached revolutionary success in biological, medical and pharmacological research in recent years. With the VisiScope system you can reliably document living organisms and intracellular processes, even over a period of several days.



Axio Observer with large incubation chamber and CO₂ control.

Efficient observation of living cells

With the VisiScope Cell Explorer system, you can reliably document living organisms and intracellular activities even over a period of several days.

Rapid processes in BioMedicine

Do you want to acquire time lapse and Z-stack image series in fraction of a second?

With the VisiScope streaming possibility for Z-Focus Piezo and illumination systems, we can deliver hundreds of frames per second, depending on the used camera and region of interest.

Cells Need Perfect Climate Conditions !

The VisiScope Incubation System

The XL-series of large incubation chambers is a high performance solution for live cell applications over long time periods which are conducted at a constant temperature over the entire observation. It keeps highly stabilized conditions after a warm-up phase of the internal components e.g. slide holder, objectives. CO₂ and O₂ modules can be easily added with suitable CO₂ covers for corresponding sample holders.

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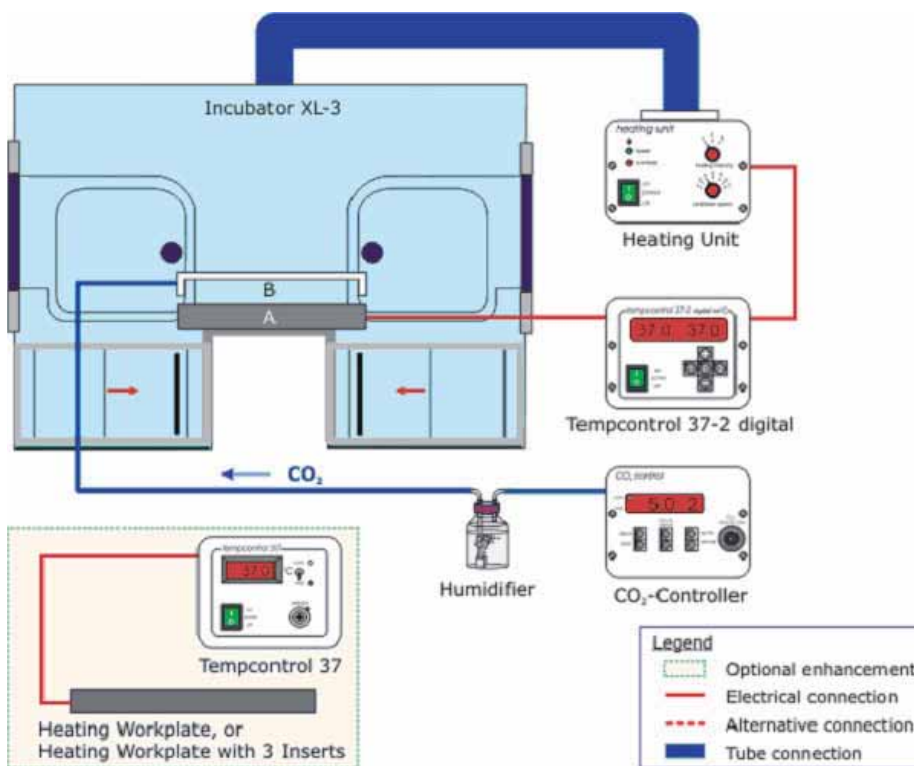


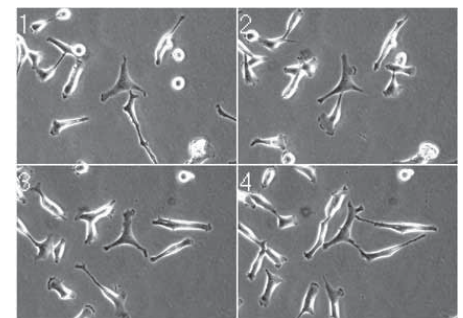
Diagram of large incubation chamber with CO₂ control.

CO₂ and O₂ modules

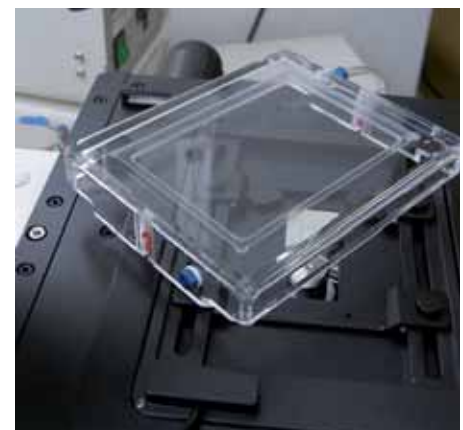
CO₂ and O₂ modules can be easily added with suitable CO₂ cover for corresponding sample holder e.g. for multiplates or universal slide holder. A special O₂ controller controls the oxygen concentration besides the control of temperature and CO₂-concentration. The O₂ content is reduced by displacement with nitrogen. Within the system, the O₂-concentration is monitored by a zirconiumoxide sensor, an analogue PID closed loop control adds nitrogen via a piezo controlled valve into the circulating air stream. This continuous nitrogen flow gives a very homogeneous oxygen distribution with best control tolerances.



XL-incubation chamber black for laser safety.



Time lapse of HeLa cells.



CO₂ cover for universal mounting frame.

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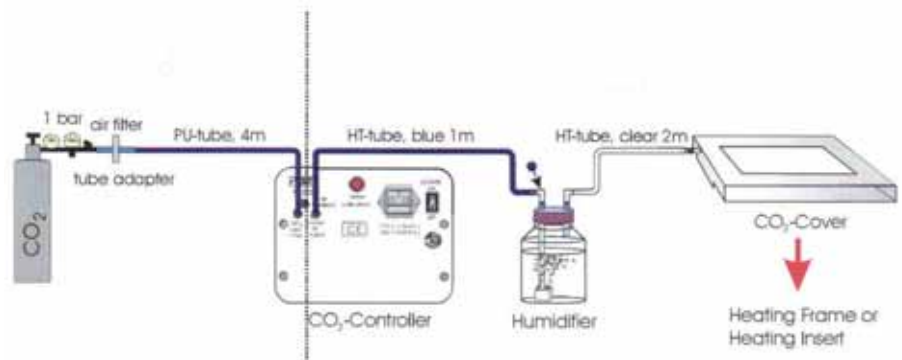
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Incubators for every Field of Application

Our VisiScope is also available with small incubators, which provide maximum handling space and cover every requirement. Heatable mounting frames are available in different formats e.g. universal frame for dishes and slides, multiplate frames etc.. The CO₂ system is also modular and the CO₂-Cover is designed to fit onto the selected sample frame.



Small incubation system with heating universal Labtek holder and heating CO₂-cover.



O₂-Control

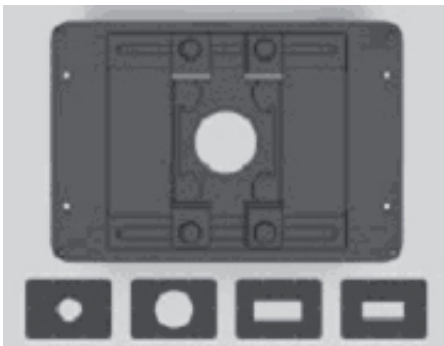
The O₂-concentration in a living organism is far lower than in ambient air. This can have significant effects on cells and is often not taken into account. Ideally, the oxygen concentration in the examination area should be reduced from 20,9% to approx. 5% by a displacement with nitrogen.

The CO₂-control device generates a CO₂-air mixture with an adjustable CO₂-concentration, replacing expensive premixed CO₂ gases in cylinders. Pure CO₂ from an external source (e.g. gas cylinder) is fed into an internal mixing chamber where two fans provide an optimal CO₂ dispersion.

Objective and Mounting Frame Heater

Especially with the use of oil immersion objectives, the direct contact between the cell cultivation vessel and the colder objective leads to a significant cooling in the area of the observed cells. The Objective Heater is designed for stable heating of microscope objectives in order to improve temperature conditions in the observation area.

The heatable mounting frame with circular and slotted cut-outs, can be easily installed at the microscope stage insert with an opening of 160x110 mm. The base plate is directly heated from below. The frame has been specifically developed for CO₂-gassing together with a CO₂-Cover.



Heating insert with 4 exchangeable plates for object slides, Petri dishes etc..



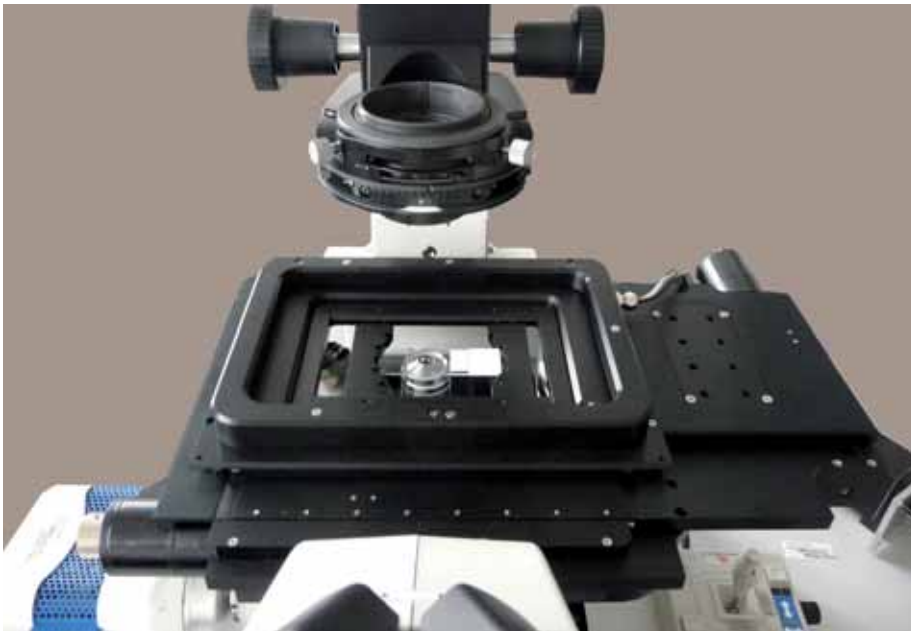
Objective heater.

6D Multidimensional Microscope Control

The VisiScope multi dimensional acquisition module guides the users through the setup of each acquisition dimension. Microscope and hardware controls are integrated within the VisiView® imaging software. Illumination, magnification, and xyz location settings are easily accessed from the menu. The customizable auto-focus capabilities compensate thermal drift and keep cells in focus.

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6D Multidimensional Imaging

- » 2D Image by CCD camera
- » 3D by Z-series (z dimension)
- » 4D by Time lapse (temporal dimension)
- » 5D by Multiple fluorochromes (wavelength dimension)
- » 6D by Multiple stage positions (stage point dimension)

Fast and precise xyz stage with piezo focusing

VisiScope offers a selection of several motorized stage models. This will make it easy to achieve higher sample throughput and higher image resolution. The piezo based focus insert delivers precise 3D images and takes care that the sample stays in focus by the VisiView® software with autofocus function. The focus range can be selected from 100, 200 to 500 µm. Depending on the scientific camera used e.g. up to 30 to 100 focus steps / second can be executed.

