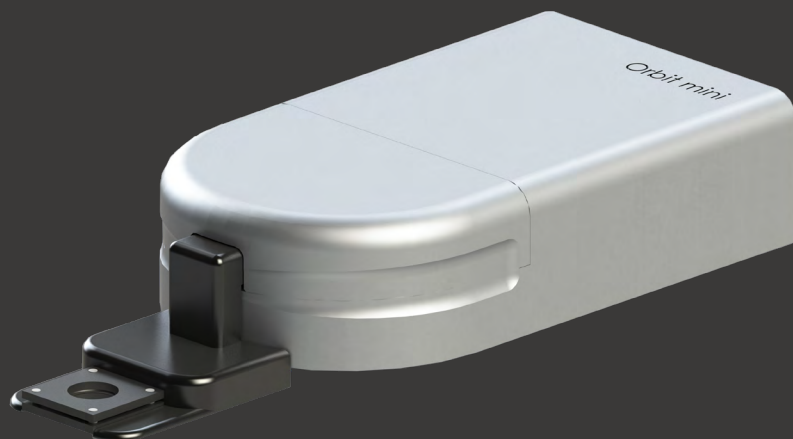


# ORBIT MINI

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MECA 4 OPTO-INV add-on:  
Combining optical and electrical readout



The MECA 4 OPTO-technology enables simultaneous optical and electrical recordings in free standing artificial lipid bilayers.

The MECA 4 OPTO-INV kit is comprised of an adapted Faraday shield for Nanion's Orbit mini bilayer recording station and a tailor-made holder for Ionera's MECA 4 OPTO-INV chips. The holder allows for the positioning of the recording chips over the objective of an inverse microscope while enabling the electrical connection between the chips and the amplifier inside the Orbit mini.

Schedule a Demo



[www.nanion.de](http://www.nanion.de)

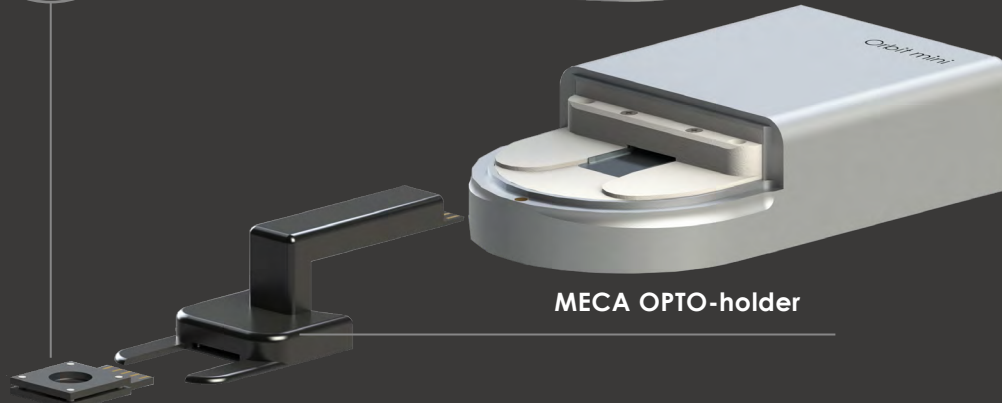
## MECA 4 OPTO-INV Chip



## Adapted Faraday Shield



## MECA OPTO-holder



MECA 4 OPTO-INV chip inserted in the MECA OPTO-holder connected to the Orbit mini (right). Detail of the MECA 4 OPTO-INV chip and the c-shaped electrodes used within (top left).

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The MECA 4 OPTO-INV chip contains four cylindrical cavities inside a glass substrate which can be spanned by artificial lipid bilayers. C-shaped Ag/AgCl electrodes at the bottom of each cavity allow for the application of voltage protocols and the readout of a current signal while providing a translucent path for the parallel readout of an optical signal.

The integrity of the optical readout can be assessed as shown below: fluorescent microspheres with a diameter of 500 nm were added to a lipid bilayer generated on the MECA 4 OPTO-INV chip. These nanoparticles sink down onto the membrane and can conveniently be focused in the area of the entire bilayer.



(A) Schematic of the experimental setup for the detection of fluorescent microspheres. (B) The MECA 4 OPTO-INV chip placed above the objective of an inverse microscope. (C) Image of the microspheres on the lipid bilayer - all spheres are in focus.



» The MECA OPTO system easily coupled to my inverted microscopes and worked with a wide range of objectives.

The MECA OPTO-holder provides traditional convenient bilayer formation and channel insertion with good electrical noise characteristics while markings make locating microwells quick and easy.

Simultaneous optical and electrical interrogation of the microwell aperture accelerates lipid bilayer validation for ion channel measurements. «

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lonera