

## Handling science the PlayStation® way

Gamers are not the only ones who find the DUALSHOCK®2 controller for the PlayStation®2 easy to use and accurately reactive. German company Kleindiek Nanotechnik uses the DUALSHOCK 2 as the controller for its latest in micromanipulation technology – a device that moves in one nanometre increments!

Kleindiek Nanotechnik is a high tech company that develops and manufactures nano-motors. The company's latest technology, the new Micromanipulator MM3A (MM3A) has been developed for use by scientific researchers, surgeons or computer engineers – anyone that needs to handle minuscule particles through the precise positioning techniques of a microscopic needle.



The MM3A's needle is so small it cannot be seen with the naked eye. It moves in nanometre-steps, that is moving the needle from one atom to another for uses as varied as minimal invasive surgery such as eye and ear operations, brain research in the field of life science or even working on micro computer chips or semiconductors.

With an extensive operating range, the MM3A can approach its target with a high degree of flexibility along the X, Y and Z axes within a 100cm<sup>3</sup> operating area. Such precise movements need to be made by a controller that is accurately reactive, and which is easy and comfortable to handle particularly over a long period of time.

In order to meet these specific requirements, Kleindiek Nanotechnik's MM3A uses the DUALSHOCK 2 controller for the PlayStation 2. "The DUALSHOCK 2 is the only controller on the market with symmetrical multi-axis analog sticks that can manipulate the device's extensive operating range and flexibility," said Dr Stephan Kleindiek, Founder of Kleindiek Nanotechnik.



The DUALSHOCK2 has analog control and pressure sensitivity on all action buttons, as well as movement on the twin analog sticks. Each button has 256 different levels of pressure, making the DUALSHOCK2 one of the most advanced controllers available today and the ideal device for manipulating such precise movements.



"The use of the DUALSHOCK 2 in a high precision scientific environment highlights the quality of the product that we are able to offer our customers," said Sony Computer Entertainment Europe.

"Until the release of the new MM3A with the DUALSHOCK 2 controller, micro manipulation technology required highly skilled people to direct it.

Now the process is much easier, the user can focus on the task on hand and not on an uncompromising manipulator, particularly when working for extended periods of time," added Dr Kleindiek.

---

#### About Kleindiek Nanotechnik

Kleindiek Nanotechnik is a young and customer oriented High Tech Company. With an innovative and powerful driving concept Kleindiek Nanotechnik enters new space in micro and nano positioning. The Nanomotor®, invented by the company founder Dr. Stephan Kleindiek is a mini linear motor with 3 mm diameter, 15 mm length and 10 mm stroke and combines highest precision with extremely large working range.

Dr. Stephan Kleindiek studied physics in Marburg and Tübingen, Germany. He developed a highly precise nano positioning tool with an integrated miniaturized laser interferometer during his masters thesis. In his PhD thesis he invented the Nanomotor® and created the world's smallest commercial scanning tunneling microscope. This microscope is the first of it's kind with atomic resolution without additional vibration damping.

Miniaturizing in chip technology, optics, micro mechanics, medicine, gene and bio technology requires highly precise positioning techniques. This requirements are met by the Nanomotor® products offering a new level of precision.

#### About Sony Computer Entertainment Europe

Sony Computer Entertainment Europe, based in London, is responsible for the distribution, marketing and sales of PS one and PlayStation 2 hardware and software in 102 territories across Europe, the Middle East, Africa and Oceania. By the end of December 2003, over 39 million PlayStation and PS one units had been shipped across these PAL territories and over 99 million worldwide. Between its European debut on 24 November 2000 and 13 January 2004, over 24.5 million PlayStation 2 units have been shipped across the PAL territories, over 70 million world-wide, making it one of the most successful computer entertainment products in history.

PlayStation and the PlayStation logo, PS one and PS2 are trademarks or registered trademarks of Sony Computer Entertainment Inc. All other trademarks are the property of their respective owners.