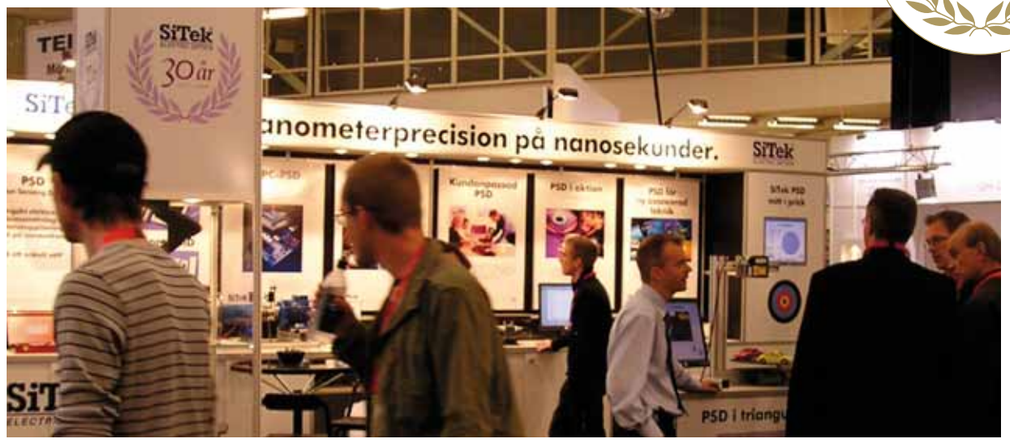

Meet us in Stockholm

SiTek welcomes all customers and partners to Electronics/EP 2008.

Take the opportunity to meet us between 28th – 30th of January at the Stockholm International Fairs. We are at your service these days and we will be pleased to tell you more about our products and how you can use their unique qualities. With over 30 years of experience of the PSD technology SiTek has a large amount of knowledge to support you and to help you with the best solution for you application.

Let us present our latest developments and show several applications that will explain how the PSD works.

We also challange you to test your shooting skills with our PSD-based shooting range, there are nice prizes to win!

Elektronik

Please be welcome to our booth C09:25

Coming exhibitions

At the following exhibitions our distributors will be attending and you are very welcome to visit their booth and experience our products. For further information please contact our distributors or us.

Country	Company	Website/e-mail	Exhibition	City	Date
Japan	Autex Inc	www.autex-inc.co.jp sales31@autex-inc.co.jp	LaserExpo PositionExpo	Yokohama Yokohama	23-25 April -08 22-24 Oct. -08
Germany	Laser Components	www.lasercomponents.com info@lasercomponents.com	Sensor Optatec	Nürnberg Frankfurt	6-8 May -08 17-20 June -08
The Netherlands	Promis Electro Optics	www.gotoPEO.com info@gotoPEO.com	Fotonica Precisiebeurs	Nieuwegein Veldhoven	3 April -08 26-27 Nov. -08
USA	On-Trak	www.on-trak.com info@on-trak.com	Photonics West CLEO SPIE	San Jose San Jose San Diego	22-24 Jan. -08 6-8 May -08 12-14 Aug. -08

www.hana1.se – SITE-0015 – January 2008

Meet us at

Elektronik

28th – 30th of January

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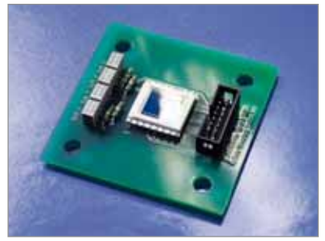
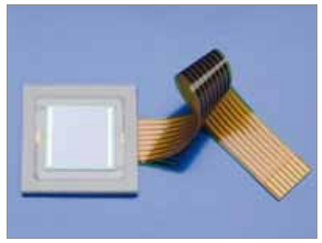
SPC-PSD Evaluation Board

In order to simplify the set up of our popular SPC-PSDs in an optical system SiTek now releases an SPC-PSD Evaluation Board. The Evaluation Board can easily be mounted on an optical table by using a standard 2" filter holder or screwed to for example an XYZ stage by using M6 screws. The board includes offset compensation electronics and a 14-pin connector that makes the inputs and outputs of the SPC-PSD easily accessible.

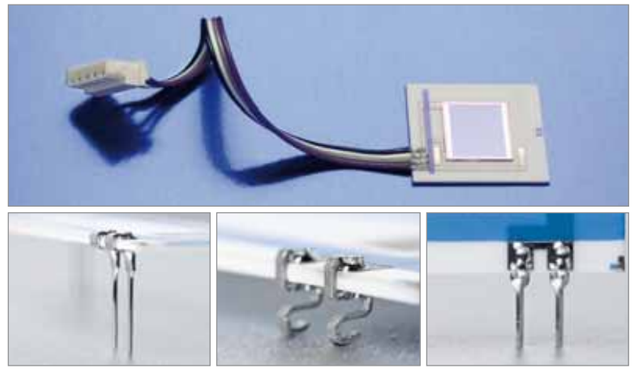


Evaluation boards for both the J-lead and the DIL version of the SPC-PSD are available and, as all of our products, they are of course RoHS compliant.

Flex Film for compact designs



SiTek is happy to announce that we now also have the possibility to offer PSDs with Flex Film connectors. The Flex Film connector is a thin, flexible polyimide film which connects the PSD to other electronics. This connection alternative is especially suitable for applications where the space is limited. Not only can the PSD package be made extremely thin but since the flex film can be bent, folded or twisted it increases the freedom of the system designer and thereby renders the possibility to design very compact PSD systems.



Custom designed interconnects

Even though the DIL (Dual-In-Line) and SMD (Surface Mount Device) pad interconnects used on SiTek's standard devices are by far the most common type of interconnects for PSDs, there are many other possibilities.

Due to SiTek's in-house design capabilities and our close relations with our package suppliers we have a great possibility to custom design the PSD interconnects to fit every need.

The number of different pin designs is huge and instead of the DIL pins used on our standard devices it is for example possible to use DIL pins with another length, different placement, different pitch or different standoff (distance between the substrate and the PCB). The later also makes it possible to place other devices under the PSD. It is also possible

continues on page 2 ►►►

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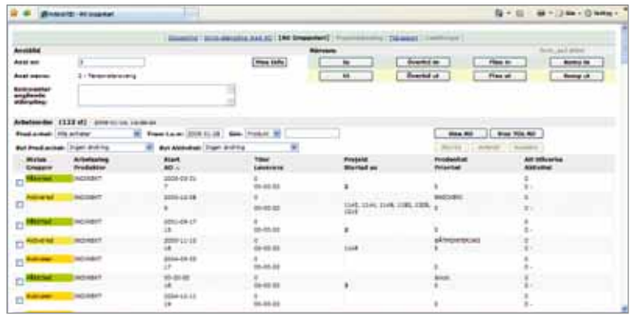
Highest rating again

SiTek is proud to inform that our outstanding financial strength has, for the 8th year running, been recognized by Dun & Bradstreet with their highest rating of credit worthiness; AAA. Only 5% of companies tracked in Sweden receive a rating of AAA. Once again 2400 different rules have been fulfilled which is a proof of our strong management and will secure continuous service and excellent support to our customers.

Tracking effectivity – online



►►► **Custom designed interconnects**

to replace the DIL pins with J-shaped or gull-wing type pins for SMD mount.

The choice of connector could also greatly simplify the design of the complete system, for example, the use of SIL (Single In-Line) or ZIL (Zig-zag In-Line) pins makes it possible to mount the PSD vertically on the PCB or a substrate with a cable and connector makes the connection/ disconnection of the device easy. Hence, by choosing the proper interconnect the PSD system design can be greatly simplified.

To reach an even higher level of customer focus from a cost effective and quality targeted point of view SiTek has invested in a new high-class manufacturing reporting system, Hybron Time (delivered by Infostruct). Our ambition to continuously supply top-of-the-line products is strengthened by the comprehensive and flexible software, that gives us the opportunity to know all cost activities and thereby allocate them in the most productive way possible.

By the implementation of the system, SiTek will now be able to follow up the production in detail to measure, assure and improve products and processes on a continuous basis.

I am **Mia Nisson** and live in the outskirts of Gothenburg with my husband and two sons, 5 and 2 years old. I'm an educated chemical engineer and before my work here at SiTek I have been working as a process engineer with tenside manufacturing as well as a laboratory technician at a surface treatment company. Here at SiTek I will work with the chip process, an exciting challenge for me with many new things to learn. I am looking forward to produce the SiTek PSD.

When I have some time over I love to spend it with my family, to be in the garden and the green house.

Although I have not been at SiTek for so long time I can feel that it is a great company to work for and I enjoy working with my new colleagues.

New employees

My name is **Susanna Tidqvist,** I am 34 years old and live with my husband and two children 10 and 11 years old. I work as a Production Engineer since May last year. I felt very welcome from the start at SiTek and I appreciate my new colleagues very much.

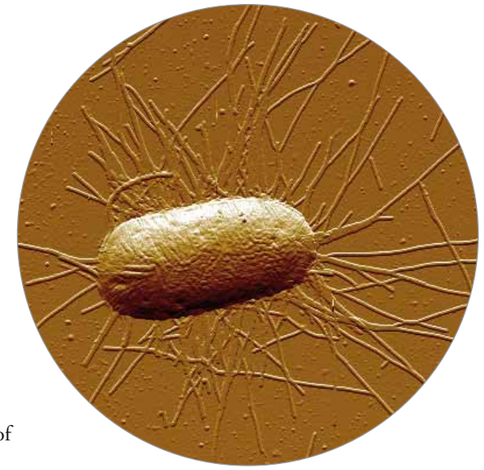
Before SiTek I was working as a measurement technician for 13 years.

On my spare time I love to travel to our summer cottage where we spend time outdoors, fishing and being in the nature.

Music and all kinds of sports are my main interests and I spend a lot of my spare time at the local sports association.

PSD-based optical tweezers sense smallest forces in nature

Adhesion processes in biological systems involve very delicate forces. To study these forces, at a single molecule level, instrumentation that can sense pico Newton (10^{-12} N) forces is required. Laser aided micromanipulation, i.e. force measuring optical tweezers, has turned the microscope from a passive observation device into an active manipulation tool that allows for both manipulation of micrometer-sized objects with nm resolution and force measurement with sub-pN resolution.



Optical tweezers are a technique in which microscopic-sized particles, including living cells, bacteria and various types of semi-transparent objects, can be non-intrusively trapped with high accuracy solely using focused light. In addition, the technique provides outstanding manipulation possibilities of the trapped objects. Optical tweezers can also measure minute forces (< 10^{-12} N), probe molecular interactions, including their energy landscapes, and apply both static and dynamic forces in biological systems, including individual macromolecules, in a controlled manner (Fig. 1). The assessment of intermolecular forces with force measuring optical tweezers (FMOT), and thereby the biomechanical structure of biological objects, has therefore considerably facilitated our understanding of interactions and structures of biological systems.

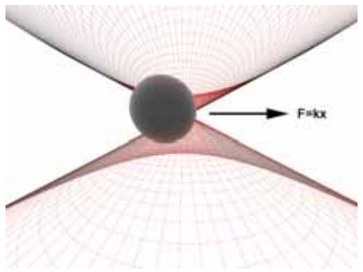


Figure 1. Illustration of a particle close to the focus of the laser beam. The restoring force is proportional to the displacement.

Optical tweezers have therefore become a powerful tool in the field of biophysics.

The restoring force of an optical trap increases with the deflection, wherefore the deflection of an object is a direct measure of the applied force. Deflection of the object can be monitored by a weak probe laser. The trapped object in combination with the condenser of the microscope act as an image system that magnifies the movement of the trapped object ~1000-fold (Fig. 2).

Monitor the smallest forces in nature

The use of SiTek 2L20 PSD, with its good position resolution and excellent linearity, for measurement of the deflection of the HeNe laser light, and thereby the trapped object, allows for nm resolution position tracking and sub-pN force probing.

The force resolution is more than 10 times better than the best AFM (Atomic Force Microscopy) systems and can monitor the smallest forces in nature, i.e., those due to thermal fluctuations. The technique thus allow for monitoring of the smallest relevant forces in biological systems.

The optical tweezers group at Umeå University has developed and applied the FMOT technique on adhesion organelles (so called pili) expressed by uropathogenic Escherichia coli.

Their research has among other things revealed the detailed biomechanics of the pili that help the bacterium to sustain the natural rinsing action of the urine flow, mechanisms that can be a possible target for new anti-bacterial drugs.

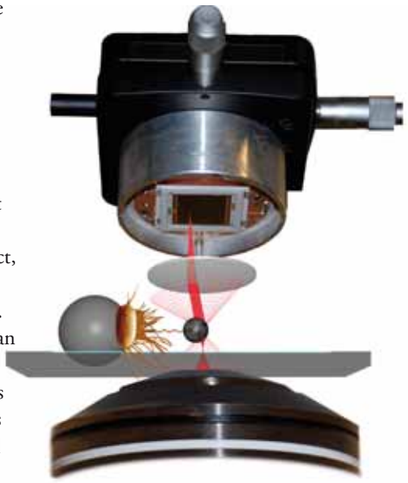


Figure 2.Illustration of the force measurement system. The biological system under investigation, a urinary tract bacterium expressing pili, is mounted on a functionalized 9 µm bead attached to the cover slip. The force is applied to a probe bead, attached to an individual pilus, via a highly focused IR laser, and monitored by a weak probe laser and a Position Sensing Detector (SiTek 2L20).

For more information: http://www.phys.umu.se/exphys/OpticalTweezers/