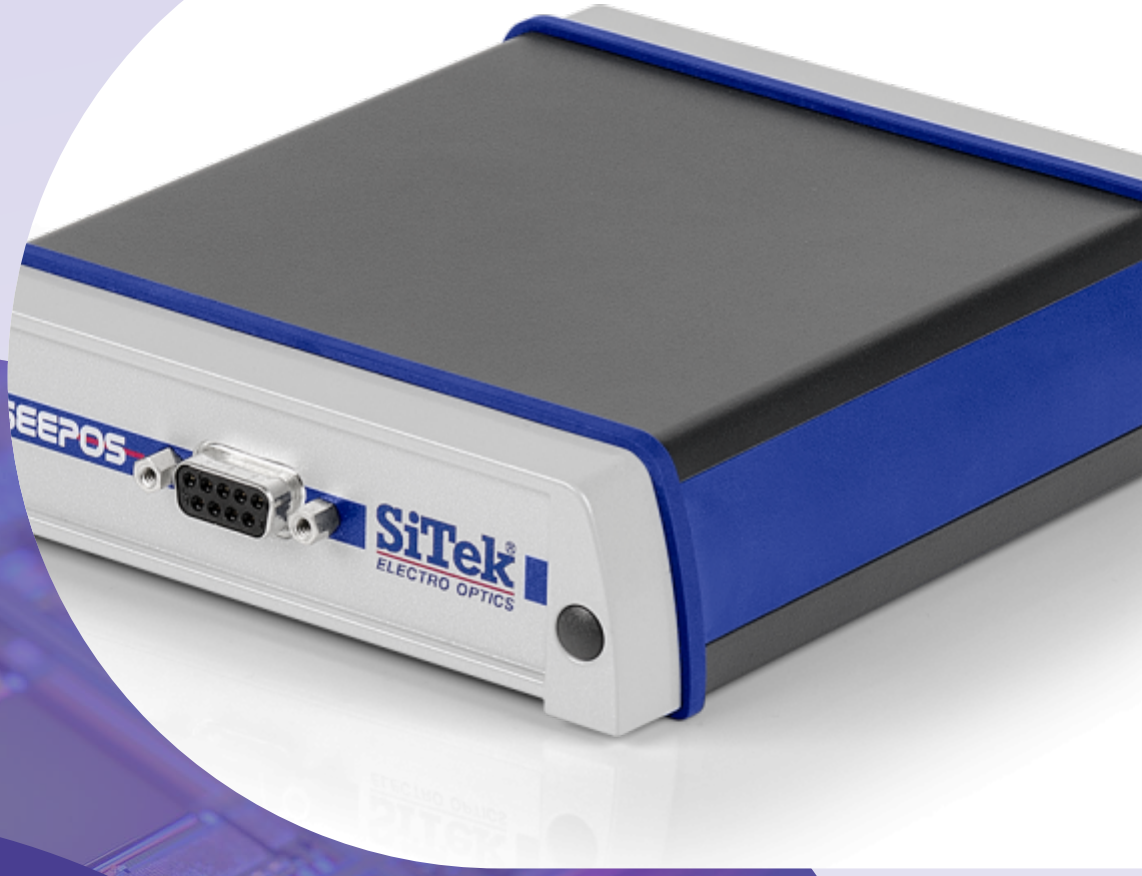
SEEPOS MEASUREMENT SYSTEM



PHOTONICS

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Partner SiTek

SiTek Electro Optics AB is a leading Swedish manufacturer specializing in high-precision optical and photonic solutions, with a core focus on Position Sensing Detectors (PSDs). Their advanced photonic technologies are designed for demanding applications requiring exceptional accuracy in positioning, alignment, and measurement.

Product offering

SEEPOS PSD signal processing tool – SiTek

SEEPOS PSD signal processing tool – SiTek

For most position measurement applications the SiTek SEEPOS system offers a complete and easy-to-use solution. High speed PSD electronics combined with digital signal processing and high speed USB data transfer gives a powerful measurement system. With its large dynamic range it can handle light powers from nW to mW from DC light sources as well as modulated light sources. All parameters, such as PSD bias voltage, amplifier gain, the use of analog and digital filters etc., are easily controlled from the included software and light spot position is continuously displayed both in XY and X-t, Y-t graphs. Optimized plot algorithms ensure that all data is visually seen on the screen even in full speed measurements. Included tools for data analysis and visualization simplify rapid scan through large data sets in order to find specific parts of interest.

SEEPOS PSD signal processing tool features

- extremely versatile – all important parameters can be adjusted
- highest performance – 16 bit A/D conversion at 1 MHz and full speed USB data transfer
- user friendly – intuitive interface based on LabVIEW
- suitable for all users – easy set-up and advanced analyzing functions included
- PSD Holder MH01 and MHO2 (optional)

PSDs in Mechanical Holder MH01

SiTek’s high linearity PSDs are also available in a mechanical holder suitable for optical system setups. The mechanical holder MH01 has a size of only 52 x 52 mm2 and the PSD is easily accessed via a DSUB9 connector. It is designed to fit ø1” filters as well as standard optomechanical components, such as posts and lens tubes. To minimize reflections it has a black anodized surface. The holder is available with SiTek’s PSDs ranging from 2,5 – 20 mm (1D) and 2 x 2 – 20 x 20 mm2 (2D). SiTek’s UV-enhanced PSDs and PSDs with stray light elimination (NT) can be delivered mounted in the PSD mechanical holder upon request.

holder MH01

PSDs in Mechanical Holder MH02

SiTek’s high linearity PSDs are also available in a mechanical holder suitable for optical system setups. The mechanical holder MH02 has a size of 84 x 84 mm2 and the PSD is easily accessed via a DSUB9 connector. It is designed to fit square 2” filters as well as standard optomechanical components, such as posts and cages stages. To minimize reflections it has a black anodized surface. The holder is available with SiTek’s PSDs ranging from 30 – 60 mm (1D) and 20 x 20 – 45 x 45 mm2 (2D). SiTek’s UV-enhanced PSDs can be delivered mounted in the PSD mechanical holder upon

request.

holder MH02

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Partner On-Trak

On-Trak Photonics is a U.S.-based leader in precision alignment and optical measurement technologies, specializing in Position Sensing Detector (PSD) systems for the photonics industry. Their solutions are designed for real-time, high-resolution position feedback across a wide range of optical and laser-based applications.

Product offering

OT-7000 Laser Alignment System

OT-4040 Alignment Laser System

OT-5000 RLT

OT-2020 Rotating Laser Target System

OT-7000 Laser Alignment System

Now, the most powerful way to measure alignment at distances up to 300 feet is more convenient and flexible than ever. On-Trak Photonics' OT-7000 Laser Alignment System provides an autocentering and wireless solution for performing real-time measurement of multiple targets along a single reference laser line.

Dynamically monitor work as it progresses. The OT-7000 displays X-Y deviation of each measurement target simultaneously-over your Windows based computer, at the RF controller module, or via LED displays located on each target's dedicated CPU.

Used by leading aircraft manufacturers, shipbuilders and the automotive industry, On-Trak Laser Alignment technology is proven to streamline efficiency and significantly reduce man hours. The OT-7000, with its auto-align and wireless capability, will only boost this productivity further.

Auto-Alignment Capability.

Loading stress and thermal changes during the manufacturing process can cause conventional alignment systems to move out of center on the reference target. The OT-7000 compensates for this with an automatic feedback loop that constantly monitors and re-centers the laser via internal motion controllers. User-programmable settings enable you to adjust centering sensitivity levels and feedback sampling rates. Store these values into memory for future recall.

Multi-Target, Wireless Communication.

No more cabling hassles-tangling, storage, damage, routing headaches, etc. The OT-7000's wireless design makes it easy to instantly add or remove measurement targets anywhere along the laser line. RF spread-spectrum technology (902-928 MHz) provides rock-solid wireless communications between key components.

Advanced Computer Control.

Collect and process measurement data with your Windows-based computer. Beam-Trak 7000 software displays X-Y deviation of all targets, enabling you to dynamically monitor work in progress. 0.001-Inch Resolution At 300 Feet. Optimize precision and gain a greater measure of confidence. The

OT-7000 provides 0.001-inch resolution at distances up to 300 feet. A third generation fiber-coupled laser diode delivery system ensures exceptional beam quality over long distances.

OT-4040 Alignment Laser System

Introducing an easy, powerful way to perform accurate alignment measurements on the go. The OT-4040 Alignment Laser System enables instant measurement of X-Y deviation, in real-time, at any point on a visible laser reference line – a line extending up to 300 feet long. Dynamically monitor your project as it unfolds. Simply drop a “transparent” measurement target into any standard NAS tooling sphere along the reference line, and take your reading with the attached central processing unit. The OT-4040 Alignment Laser System is extensively proven by aircraft manufacturers, shipbuilders, and the automotive industry. It has significantly streamlined efficiency and reduced man hours in a varied range of challenging alignment applications.

Silicon Position Sensing Detector

A typical system consists of a single Model OT-4040 LL Alignment Laser, OT-4040 TTS4 Transparent Target, OT-4040 TS4 Reference Target, and two OT-4040 Central Processing Units (oneCPU for each target). Numerous options are also available.

0.001-Inch Resolution At 300 Feet.

Optimize precision and gain a greater measure of confidence. The OT-4040 provides conservatively specified 0.001-inch resolution at distances up to 300 feet. A third generation fiber-coupled laser diode delivery system ensures exceptional beam coherence over long distances – even in demanding outdoor environments.

Anyone Can Operate It.

Concentrate on your work, not your alignment system. The OT-4040 couldn’t be easier to operate. In fact, even first-time operators can be up-andrunning in less than five minutes with hardly a glance at the instruction manual. The system is that simple and intuitive.

- **Cost Effective.** Outperforms laser tracking systems in this specific application, at a fraction of the price.
- **Ultra Precise.** Eliminates margin of error associated with subjective manual approaches.
- **Real-Time Feedback.** Enables user to make on-the-spot alignment adjustments.
- **Faster Measurement.** Reduces man hours and facilitates

project efficiency.
- **Maximizes Range.** Perform measurements at distances up to 300 feet.
- **Simultaneous Measurement.** Enables simultaneous measurement from multiple targets.
- **Data Analysis.** Position data can be monitored, stored and analyzed by a computer.

Industrial Strength.

Extreme industrial environments? No problem. The OT-4040 CPU and OT-4040 Target are built to withstand the rigors of day-to-day, on-the floor use.

An Ideal Laser Tracking/Optical Telescope Alternative.

Many consider laser trackers “too much solution” for alignment applications alone. Conversely, optical telescopes, with their slow and subjective performance, are often considered “too little solution”. The OT-4040 provides the best of both worlds: it’s exceptionally accurate, yet simple-to-operate and cost effective. Moreover, the OT-4040 system is optimized for instant, drop-in replacement of optical telescope systems via NAS standard housings. The overriding advantage is multipoint, dynamic, objective measurement – something neither laser trackers nor optical telescopes individually offer.

OT-5000 RLT

The OT-5000 RLT Rotating Laser Target System, in tandem with a rotating laser, is the most comprehensive way to measure flatness, squareness and straightness at distances up to 100 feet.

Dynamically Monitor Your Entire Project.

The OT-5000 RLT enables you to monitor the position of up to twenty targets from the convenience of your laptop or desktop computer – simultaneously, and in real time.

Extensively proven in a wide range of applications worldwide, the OT-5000 is an ideal way to streamline efficiency and reduce man hours.

A compact carrying case (standard) houses the entire system: the OT-5000 RLT Rotating Laser Targets that detect and display the position of the rotating laser, the OT- 5000 DIM Digital Interface Module that provides power for up to twenty OT-5000 RLTs, and the cables.

Silicon Position Sensing Detector

Multiple Target Capability.

Specify as few – or as many – RLT targets required for the job. Each DIM accommodates up to twenty targets in a multidrop configuration.

Exceptional Accuracy.

Optimize precision and gain an added measure of confidence. The OT-5000 provides conservatively-specified 0.001-inch resolution and accuracy via a leading-edge silicon position sensing detector.

Computer Control.

Beam-Trak 5000 software makes it easy to dynamically monitor work in progress. This rich graphical interface displays the position information of all targets simultaneously. One glance at the screen, and you know the precise

measurement profile of your entire project. Oversize fonts enable easy readability over great distances.

Moreover, Beam-Trak software enables you to address, control and customize each target from your computer. In fact, the complete range of software commands built into each target is fully controllable via computer.

Compatible With All Rotating Lasers.

The OT-5000 System is plug-and play compatible with all rotating lasers on the market. Four-level autoranging from 0.5mW to 5.0mW and compatibility with all laser tracking speeds from 1 RPM to 1,000 RPM make compatibility instantaneous. Simply plug-in the laser, adjust your targets and begin taking measurements.

OT-2020 Rotating Laser Target System

The OT-2020 Rotating Laser Target System, in tandem with a rotating laser, provides the fastest, most accurate way to measure flatness, squareness and straightness at distances up to 100 feet.

Battery operated for maximum field portability, the OT-2020 is proven in a wealth of applications – many by Fortune 100 companies.

A compact carrying case (standard) contains the entire system: the Model OT-2020 RS1 Remote Sensor that detects the position of the rotating laser light, the Model OT-2020 CPU Central Processing Unit that provides real-time readout of the measurement value, plus several options for additional flexibility and convenience.

Exceptional Accuracy. Optimize precision and gain an added measure of confidence. The OT-2020 RS1 Remote Sensor provides conservatively-specified 0.001-inch resolution and accuracy via a leading-edge silicon position-sensing detector.

Fully Portable. Place the RS1 Remote Sensor into the optional OT-2020 BK Bracket Kit, and conveniently make instantaneous measurements anywhere along the laser beam path. Featuring a heavy magnetic base that activates/deactivates at the flip of a switch, the bracket can be firmly – and instantly – secured anywhere on the measurement surface or tool.

Ultra-Simple Operation. Concentrate on your work, not your rotating laser system. The OT-2020's CPU is refreshingly simple to operate. Minimized, straightforward controls enable you to be up-and-running with barely a glance at the instructions. Yet, there is no sacrifice to performance. The CPU provides all key functionality, including pulse averaging, zero offset and a serial communications port.

Industrial Strength. Encased in robust, custom machined aluminum housings, the OT-2020 CPU and RS1 readily withstand the rigors of extreme industrial environments. We've seen systems scratched, dented and covered in grime – yet perform flawlessly after years of continuous service.

Compatible With All Rotating Lasers. The OT-2020 System is plug-and play compatible with all rotating lasers on

the market. Four-level autoranging from 0.3mW to 3.0mW and compatibility with all laser tracking speeds from 1 RPM to 1,000 RPM make compatibility instantaneous. Simply plug-in the laser, adjust your targets and begin taking measurements.