

Consider the slogan "From Light to Byte", by Germany's tec5 AG to illustrate its focus on optical measurement and spectral analysis systems, where - in an extraordinarily wide range of industrial measurement applications - tec5 hardware transfers information from optical detectors and arrays to PCs or virtually any other display format. This light-to-byte slogan tec5's customers aren't likely to forget for a number of reasons. Dr. Gert Noll, a key account executive with the Oberursel-based company, recently spoke with TNI's Rainer Gaedtke about the success story behind "From Light to Byte".

From Light to Byte

From the start, says Dr Gert Noll, tec5 has had to react quickly to rapidly changing market demands in an extremely competitive market niche. Launched in 1993 by five former employees of Frankfurt's respected Battelle-Institute, the company's main focus soon settled on optical measurement technology, spectral data acquisition, image acquisition, and signal and data processing. It conceives, designs and fabricates the operating electronics for detector arrays and spectral analysis systems.

Since 1993, tec5 has grown steadily. In addition to adding more personnel - tec5's payroll now includes 21 fulltime physicists, engineers, technicians and marketing experts - tec5 also moved from its initial offices in 1998 to larger premises in Oberursel. Only a few miles from Frankfurt's Rhein-Main airport, the new facilities are ideally situated for a growing international company.

tec5's customers include the world's leading names in spectrometers, end users in a wide range of industries, universities and research centers worldwide. These customers profit from tec5's know-how, engineering expertise, and a product-oriented philosophy that ensures the shortest possible path from idea to product. A key tenet in this



Stationary standard systems offer flexibility, reliability and a high degree of modularity. Shown here is a standard system based on an Emcon 15 that includes an electronic multiplexer, an integrated light source and 2 spectrometer modules.

philosophy has been the development of close working relationships with some of the best-known brands in detectors, fiber optics and optical light sources. Included on the list are EG & G, Sensors Unlimited, Heraeus, Cathodeon, Prinz Optics, Hellma and Carl Zeiss.

With such a powerful starting point, it isn't surprising that tec5's customers enjoy products and benefits of world class technologies. But the story behind "From Light to Byte" isn't just a company story, says Dr. Gert Noll, it's also a product story.

Much of that story focuses on modern simultaneous readout spectrometers, which have become a fundamental component in optical spectroscopy. Equipped with a detector array and characterized by a solid design, systems like these make fast data acquisition possible in a wide-ranging spectrum of applications in the semiconductor, agricultural, mining, pharmaceutical and chemical industries. tec5 has specialized in the operating electronics for the detector arrays and sensor systems that constitute the backbone of many such spectrometry systems and has unique know-how in the field of simultaneous readout spectrometers.

Against this backdrop, the tec5 product story falls into three categories: standard stationary systems, standard portable systems and systems that are tailored to a customer's one-of-a-kind needs. Modularity is a theme that winds its way through all three categories, keeping costs low in standard systems while making it easy to change standard designs to deliver custom performance.

tec5's standard stationary systems are based on 19-inch chassis technology and use modular design to achieve flexibility, reliability and outstanding performance features. PC-oriented operating electronics and software modules provide a user-friendly development environment and guarantee easy transfer from laboratory to process. Included in the stationary systems category are components and functional units that range from spectrometers for spectral ranges between 190 nm and 2400 nm to operating electronics, light source modules, fiber optics and fiber optic probes.

Our first photo shows a representative product from tec5's stationary system line-up, an **electronic multiplexer** with an integrated light source and 2 spectrometer modules. Other highlights in this category include pixel insertion electronics for inserting external information directly in the spectral data array,

and an optical multiplexer with no moving parts for fast, sequential multi-channel measurements with one spectrometer. These and other stationary standard systems can be viewed in greater detail at tec5's Web site.

Portable systems are another tec5 specialty. Portable measurement devices, says Dr. Gert Noll, make it possible to measure spectra at different locations - including on-line locations in the production process - with both speed and precision. Sampling and subsequent measurement in a laboratory are no longer necessary in many applications. An excellent example of tec5 portable standard systems is the *HandySpec VIS*, a high-quality handheld spectral analyzer with a 1-second measurement time, a built-in LCD graphical display and RS-232 interface, and enough onboard memory to store up to 50 spectra.

Customer-specific devices round out the product story at tec5. An outstanding example is the *Hydro-N-Sensor*, a precision farming tool to manage crop nitrogen input that was developed by tec5 in less than two years with the close cooperation of

Hydro Agri Deutschland GmbH. The Hydro-N-Sensor detects the chlorophyll content of plants, determines input requirements, and controls the real-time dispensing of nitrogen fertilizer from a tractor or other mobile platform moving through an agricultural site. This measurement system not only received many awards, but also put Hydro Agri Deutschland several years ahead of its competitors in this important agricultural application.

tec5 is committed to the ongoing development of new and innovative spectral sensor applications. But the company's success story continues to roll in other respects, too. Most notably, says Dr. Gert Noll, tec5 became tec5 AG in December 1999. The transition to a joint-stock company has resulted in investment capital and important new strategic partnerships. tec5's mid-term plans include the launch of a permanent subsidiary in the United States, which is easily one of the world's most important markets for spectrometry applications. Growth in all markets remains strong. tec5 has realized up 50 to 60 percent



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growth rates in the last several years.

Readers interested in learning more should visit tec5's home on the World Wide Web. Located at www.tec5.com, this well structured site provides an in-depth, English language look at every facet of this innovative company. Readers can also contact tec5 directly for more information. ☺



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