

JENA-OPTRONIK

Offering the Full Chain

Founded in 1991, Jena-Optronik GmbH originates in the space department of Carl Zeiss Jena, Jenoptik and DASA (later part of today's EADS). In 2005 Jenoptik AG took over all shares from the European Aerospace Company EADS. Today Jena-Optronik belongs to its Photonics Business Division and has an international reputation in the fields of opto-electronic instruments and systems, software and guidance, navigation and control sensors.

Our roots lie in advanced optical space instruments: the MKF 6 camera and the first autonomous star sensor ASTRO 1 were example products for the niche. Based on this technology we develop systems and instruments for aerospace and security. Our main focus is on commercialisation of space technology and airborne remote sensing.

RS and Photogrammetry

Whether it concerns meteorological satellites or cameras for the acquisition of environmental data, our solutions are primarily designed as durable, continuous data-acquisition sources. This trend is illustrated by one of the latest developments, the multi-spectral aerial camera Jena Airborne Scanner JAS 150. The space-proven construction enables simultaneous acquisition of nine bands: five panchromatic CCD lines capture photogrammetric and 3D information, while four lines capture data in the red, green, blue and near-infrared band. Therefore only one flight is needed to produce multi-spectral, panchromatic or coloured orthophotos and DEMs. The demands of urban development, precision farming and natural disaster management will make near real-time data processing increasingly important, whilst the fusion of different types of sensor, Lidar and multi- or hyperspectral cameras, will drive future hardware developments. Customers may expect a shorter wait between ordering and receiving processed data.

Sensors for Space

We also operate in the field of Guidance, Navigation & Control (GNC) sensors for space applications. As a supplier of standard attitude and orbit-control sensors, and a significant partner for space organisations such as ESA, DLR, NASA and the satellite manufacturer Boeing, we develop Star Sensors, Sun Sensors and Rendezvous-and-Docking Sensors (RVS). The requirements for these sensors are very demanding. In addition to measurement accuracy and efficiency, reliability and durability play a decisive role. Under development is the APS Star Sensor. Emphatic requests for lower volume and power consumption and higher performance have led to replacement of the CCD sensor with a highly integrated CMOS sensor.

Software and Processing

The business segment Software and Data Processing includes space and ground-segment software and applications. The solutions cover onboard data-management, software architecture for instruments and sensors, SAR-data and image processing. Customers are mainly the German and the European Space Agencies and the German armed forces. The photogrammetric-processing suite JenaStereo, representing the first product for the commercial market, will become available in autumn 2006. Compatible in its first version only with JAS, later versions will be capable of processing data derived from other space-borne and airborne sensors. Real-time processing becomes the vision for the next generation of software tools: data from different sources being acquired and processed in near real-time to support natural disaster management, security, traffic and other applications.

Space Scanner

The space counterpart of the JAS camera is the Jena Spaceborne Scanner (JSS). These devices complete the change from analogue film to digital technology. The JSS product-line includes JSS 54 and 56, with five VIS/NIR channels, but also JSS with five VIS/NIR channels and two SWIR channels. The first JSS 56 will constitute the payload of the RapidEye missions, a mainly privately financed Earth Observation system. Cost-effective solutions become vital as space budgets become tighter. So the reuse of sub-systems for new developments and projects may play a more important role in years to come. A new development workflow may possibly also lower development costs, one of the main areas of expenditure in space instrumentation. Besides this imaging system, we are working on advanced imaging radiometers like MetImage. This instrument is currently under development and will possibly fly on future Eumetsat weather satellites to help improve weather forecasting for the whole of Europe. In addition, data from four of the six instruments on next-generation European weather satellites is processed using our software. Unfortunately, we have not yet found any algorithm able to improve bad and rainy weather and so allow us to forecast nice weather for 365 days a year!

Export

With current product-lines, 50% of turnover is generated from special projects and commercial products. Over 70% of our products and services are sold outside of Germany. This figure is expected to increase slightly as our global market presence grows. We are therefore strengthening our local presence with take-overs and new marketing & sales efforts.

Looking Forward

Jena-Optronik plans to extend its activities from the visible into the infrared and terahertz region of the electromagnetic spectrum. This extension will enable us to become a worldwide provider of instruments, systems and services for airborne and space-borne remote sensing and

photogrammetry. Accordingly, our developments focus on offering the most cost-effective solutions, and higher spatial and radiometrical resolution. We try to understand the main needs of our customers before we suggest solutions. And we try to resolve their need for information by offering the full chain, from data acquisition to applications software and services.

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