

Media Release

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All-dielectric self-blocking SWIR filters from Optics Balzers

Jena, December 15, 2011 – Optics Balzers Jena offers customized all-dielectric band-pass filters for the SWIR spectral region with a unique self-blocking filter design. They combine a wide blocking range and high pass-band transmittance in a single all-dielectric interference coating. All filters are deposited by in-situ monitored plasma-assisted sputter and evaporation processes and show extreme stability in terrestrial and space environments. Optics Balzers Jena also delivers compatible broad-band dichroic beam-splitters.

Short-wave infrared (SWIR) optical sensing applications in the spectral region between 900 and 3000nm require band-pass filters with high transmittance in the pass band, blocking ranges over full detector response and long-term shift-free spectral performance with excellent environmental stability. Potential application fields are optical remote sensing of the earth from air and space, NIR spectroscopy, Raman spectroscopy, plasma diagnostics and emission spectroscopy, blood analysis and atmospheric greenhouse gas monitoring. The semiconductor and telecommunications industries are showing an increasing interest in the characterization of optical fibers, light sources, semiconductors and other related materials.

Within the sensitivity region of the widely-used Mercury Cadmium Telluride (MCT) or Indium Gallium Arsenide (InGaAs) detectors, the selection and blocking of radiation by the filter can be provided by a single all-dielectric multilayer system. This unique self-blocking filter design inhibits interference of multiple reflections in the filter substrate. Both band-pass and blocking are realized on one side of the substrate. This design approach facilitates deep-cooled detector array assemblies, where no color glasses and no cemented components are applicable.

Best possible manufacturing methods for sophisticated filters and beam splitters

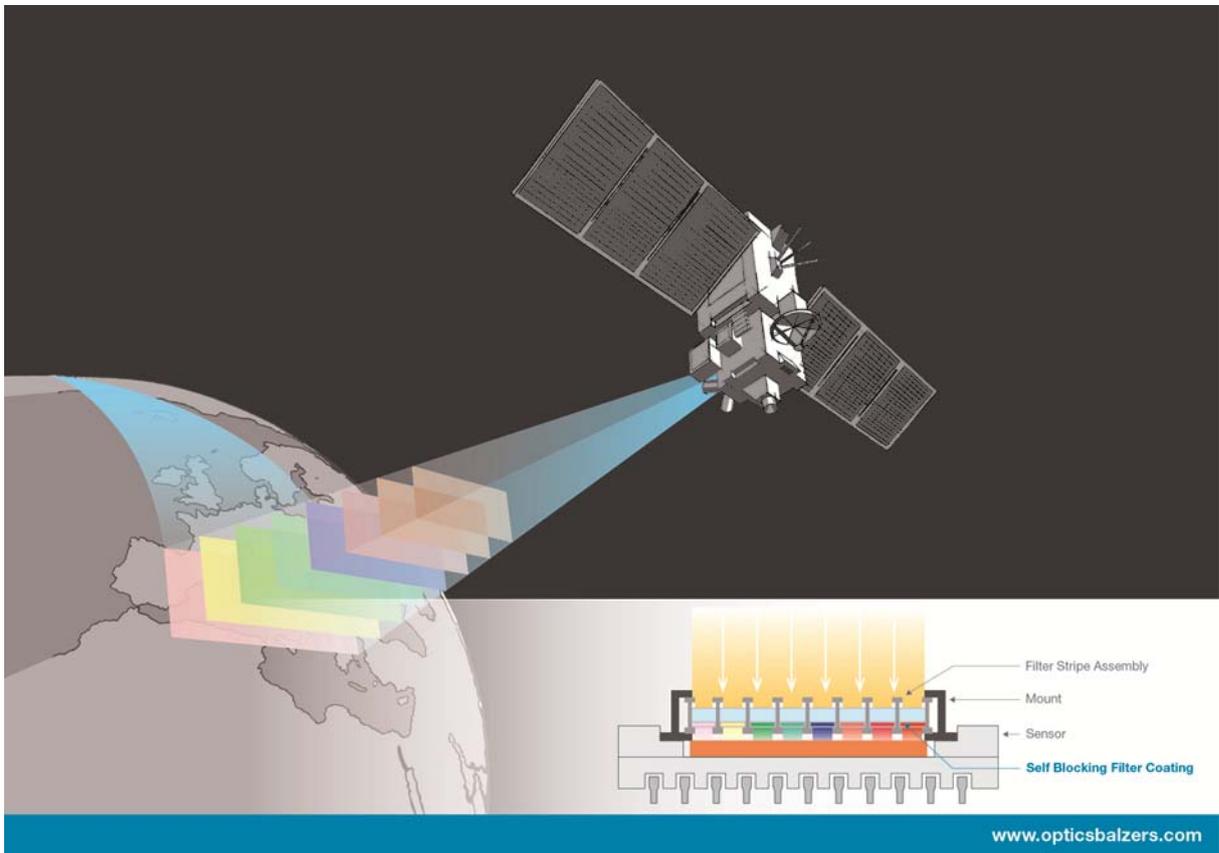
The production of optical filters meeting such high central wavelength, bandwidth and edge steepness requirements demands the latest design and deposition technology. Optics Balzers Jena offers various plasma assisted coating technologies. The hard, all-dielectric coatings thus created will retain their optical properties after the vacuum process even under different ambient conditions. They withstand temperatures from -100 to 300°C, elevated humidity conditions and – in combination with selected substrate materials – gamma and proton radiation loads.

For production of SWIR filters, Optics Balzers Jena uses broad-band spectra photometric thickness monitoring for optical checking of the layer characteristics during deposition. The high accuracy of this monitoring and control technology ensures stable and repeatable coating results direct from the design data.

To separate the SWIR detection band from possible other visible and near-infrared (VNIR) receiving channels, Optics Balzers Jena also delivers compatible broad-band dichroic beam-splitters.

Currently Optics Balzers Jena is delivering filter and beam-splitter components for the multi-spectral instrument of EADS Astrium's Sentinel-2 mission, part of Europe's Global Monitoring for Environment and Security (GMES) program.

Optics Balzers will be present at BIOS and Photonics West in San Francisco, California, USA, from January 21 – 26, 2012.



Caption:

Optical multi-spectral remote sensing of the earth from space in the VNIR/SWIR spectral region

For 65 years, Optics Balzers has been the preferred partner for providing innovative optical solutions. Together with its subsidiary in Jena, Optics Balzers is a global leader in the supply of optical coatings and components. The Liechtenstein-based high-tech company focuses on selected markets such as Sensors & Imaging, Biophotonics, Space & Defence, Lighting & Projection, and Industrial Applications. The products and services offered range from optical coatings and glass processing, patterning and bonding technologies to the manufacture of complete optical subassemblies and are acknowledged as being unique worldwide. Optics Balzers has a total payroll of about 170.

More information: www.opticsbalzers.com

