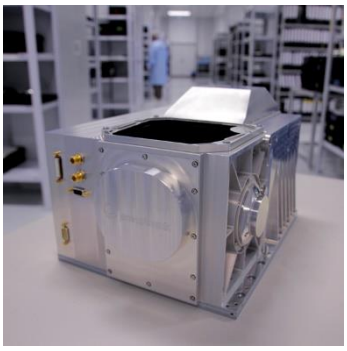
**Category:** Sensors & Measurement Techniques

**Reference:** TD-DE-1040

**Rendevous and docking sensor**



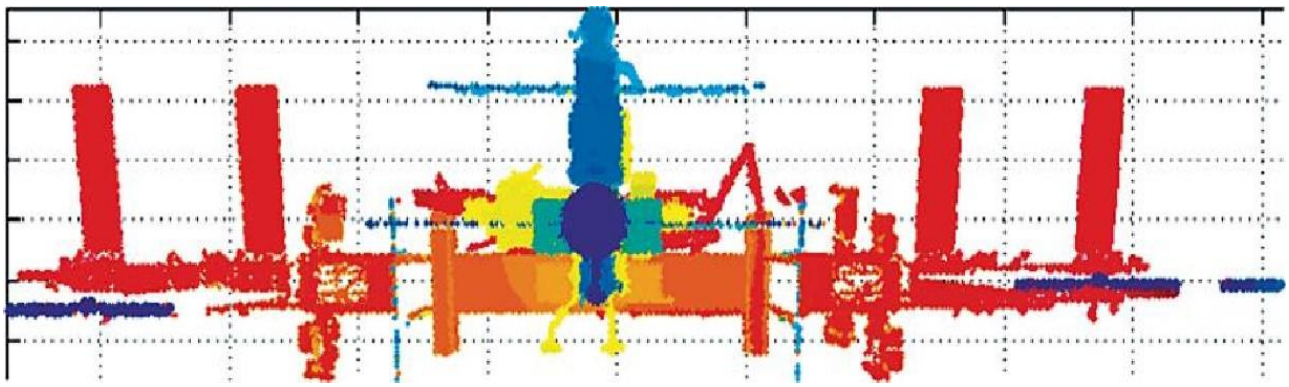
A German supplier for space industry with a focus on sensor technology offers an advanced 3D imaging LIDAR ("Light Detection and Ranging") that was made for rendezvous and docking in space.

The instrument is currently the most precise, efficient and powerful of its kind in the world and the most frequently used for docking to the International Space Station ISS.

The sensor technology includes a highly accurate range finder technology, a lightweight scan mirror with fully digital control and a high performance yet robust laser source operating at the eye-safe wavelength of 1.5 pm. The operating range is < 1 m to 10 km for cooperative targets and < 1 m to 1.5 km for non-cooperative targets, respectively. The average power consumption amounts to 40 W.

Acquisition, tracking and imaging of both cooperative and non-cooperative targets are possible.

The technology provided the basis for autonomous and precise dockings of the European ATV (Automated Transfer Vehicle) to the International Space Station



ISS (ATV-5 Mission, for example). Two Rendezvous- and Docking Sensors each have successfully enabled the fully automated berthing of all Japanese HTVs (HII-Transfer Vehicle) with the ISS. Moreover, the US un-manned cargo logistics spacecraft "Cygnus" approached the ISS with the help of this Rendezvous- and Docking Sensor.

Due to its accuracy and the large operating range various terrestrial could be considered, e.g. for robotics, automotive, or operating on UAVs.

## Innovative Aspects:

The sensor builds on the experience gained during development, manufacturing, test and operation of former versions. It retains the software and data interface as the previous model for optional compatibility but improves upon the existing RVS in several key elements.

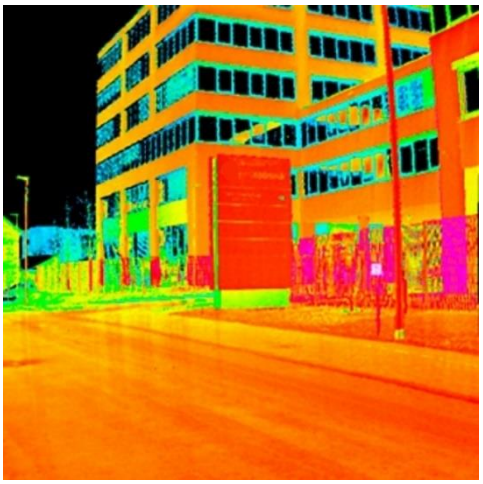
Its compact design leads to both reduced mass (12.5 kg) and power consumption. Simplified spacecraft integration is possible due to a one-box-design covering optical head and electronics as well as optical and electrical cabling in between. It provides an increased operating range and can operate with non-cooperative targets for generation of 3D point cloud data.

Finally, the service of the technology owner allows other companies to focus on their main business and benefit from modern numerical simulation technologies without large upfront investments. Detailed physical insight provided by numerical simulations can support development of innovative products, help find optimal working parameters to reduce the downtime of production facilities and limit the number of prototypes and test runs to a few.

## Application Areas:

herever detection, tracking and mapping of both cooperative and non-cooperative targets is required, e.g.:

- Rendezvous and docking in space;
- robotics,
- Agriculture,
- automotive,
- shipping
- UAVs



## Cooperation:

Interest in joint further development as well as testing of new applications and adaptation to specific needs.