

Case Study

## eks Engel empowers ILS with fiber optic technology



At international commercial airports in Germany, instrument landing systems (ILS) enable safe approaches even in poor visibility conditions. Until now, they were networked via copper cables. Because these are being replaced at many airports by more powerful fiber optic cables, the ILSs have to be connected to optical infrastructures. Hannover-Langenhagen made a start. To ensure reliable and easy-to-monitor data transmission, DFS Deutsche Flugsicherung GmbH (DFS) brought the fiber optic specialist eks Engel on board.

### Project goals and requirements

The task was to set up a fiber-optic-based infrastructure with media converters that convert the electrical signals from the ILS systems into optical signals and transmit them to the air traffic controllers in the control tower as well as to the nationwide remote monitoring system of DFS:

- Data communication via the serial interface RS232
- Transmission of RS232 signals simultaneously in both directions (full duplex mode)
- Latency below 20 ms
- Implementation of a redundant ring topology
- Simple network monitoring
- Commissioning of the media converters according to the plug-and-play principle



### Selection of the project partner

After DFS had sounded out the market, media converters from 3 manufacturers were shortlisted. One converter failed the functional tests in a test environment. The other two were tested at the Berlin-Brandenburg commercial airport.

In the end, the "d-light-232" from eks Engel came out on top, as it was easier to commission, easier to operate and, on balance, also offered the better price-performance ratio.

### Solution implementation

The data communication of the ILS systems at Hannover-Langenhagen Airport is handled by around 20 "d-light"-232 media converters, whose hardware and software have been modified in such a way that the special requirements of DFS in terms of monitoring the status of the connections and the power supply are optimally met.

The components of the systems are connected via point-to-point links to a ring line laid around the main runway. This line is in turn connected to the airport's control tower, which also houses the interface into DFS's nationwide remote monitoring system.

To prevent the fiber optic lines from suddenly failing due to gradually increasing attenuation, the budget of each port of the media converters is constantly visualized by the "FiberView" monitoring system according to the traffic light principle.

### Customer benefits

- The optical infrastructure ensures reliable data transmission and helps to reduce operating costs.
- In combination with the redundancy function of the media converters, the ring topology ensures high availability of data communication - even if the line is interrupted, the network remains functional.
- Whereas DFS technicians used to have to travel to each ILS component and manually connect the standby lines in the event of a fault, the media converters now automatically switch to the redundant path.
- Since the media converters signal the status of each connection, problems in the DFS equipment room can be identified early on, which is why the lines are no longer regularly maintained, for example.



The d-light 232 series media converters support fast ring redundancy.

You can find more information on our product page. You are also welcome to contact us directly by phone +49 2762 9313-600 or by e-mail ([vertrieb@eks-engel.de](mailto:vertrieb@eks-engel.de)). We look forward to your feedback.

