

Press Contact

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PRESSEINFORMATION

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Data Transmission with Fiber Optic in Surgical Robotic Systems Challenges for connector solutions

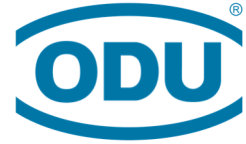
Mühldorf a. Inn. In the medical device industry, the focus is on innovative surgical robotic systems that revolutionize the precision and efficiency of surgeries. These sophisticated devices require reliable data transmission at tremendous speed and low latencies. Special Fiber Optic connections meet this high demand. The connector solutions used to implement this data transmission face numerous challenges in such complex systems.

The Challenge of Data Transmission in Operating Room Situations

In operating theatres, there is a demanding environment that places high demands on data transmission. The solutions must not only transmit the data at high speed, but also be immune to interference and electromagnetic interference. In this context, high-speed fiber optic connections play a crucial role.

Challenges for Fiber Optic Data Transmission Connectors

- 1. Miniaturization and Space Limitations:** In surgical robotic systems, the available space is limited. Connectors need to be compact to fit into tight spaces without restricting the robot's freedom of movement.
- 2. Robustness and resistance:** The connector solutions must be able to withstand the physical stresses that may occur during surgery, such as vibration or accidental shocks.
- 3. Cleaning and sterilization:** Surgical instruments must be able to be sterilized. Connectors must be designed to survive this process without sacrificing performance.
- 4. Data integrity:** In high-precision operations, there must be no data loss. The interfaces must ensure data integrity and ensure uninterrupted communication.



5. EMC and Immunity: Electromagnetic compatibility (EMC) is crucial to avoid interference from nearby electronic devices. Connectors must have immunity to interference while enabling high data rates.

As a leading manufacturer of connectors and integrated solutions including cable assembly for medical applications, ODU's products meet the demanding requirements of the MDR and IEC 60-601-1 standard.

ODU's high-speed fiber optic connector solutions are perfectly suited for use in surgical robotic systems. They are compact, rugged, easy to sterilize, and offer outstanding data transmission performance, even in EMC-intensive environments. For example, with the help of Expanded Beam Performance technology, the highest data rates can be achieved with extremely low attenuation values.

ODU Group: global representation with perfect connections

The ODU Group is one of the world's leading suppliers of connector systems, employing 2,500 people around the world. In addition to its company headquarters in Muehldorf a. Inn (Germany), ODU also has an international distribution network and production sites in Sibiu/Romania, Shanghai/China, and Tijuana/Mexico. ODU combines all relevant areas of expertise and key technologies including design and development, machine tooling and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly. The ODU Group sells its products globally through its sales offices in China, Denmark, France, Germany, Hong Kong, Italy, Japan, Korea, Romania, Sweden, UK and the US, as well as through numerous international sales partners. ODU connectors ensure a reliable transmission of power, signals, data and media for a variety of demanding applications including medical technology, military and security, automotive, industrial electronics, and test and measurement.