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PRESS RELEASE

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The evolution of military optronics

ODU presents pioneering connection solutions for demanding military operations

Optronics form an integral part of modern operational military equipment. They play a decisive role in the tactical superiority and safety of armed forces. From night vision technology and thermal imaging systems to enhanced head-up displays (HUDs) and augmented reality glasses, such optoelectronic systems are indispensable tools for military operations.

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The use of highly sophisticated optronics in extreme environments and the high sensitivity of such systems present manufacturers with special challenges. In particular, the interfaces and connections of the optronics are a potential weak point that is considered crucial for the quality and reliability of the imaging.

Connectivity challenges for optronics:

1. **Break resistance:** The connection systems have to withstand enormous tensile and torsional forces, which can lead to bent or broken contacts if they are not stable enough, thus impairing the functionality of the optronics.
2. **Environmental compatibility requirements:** Military applications are increasingly becoming subject to environmental requirements. The connection systems should therefore comply with the RoHS guidelines so as not to pose a risk to the user or the environment.

3. **Protection against environmental influences:** For a solution that can be used as flexibly as possible, the interfaces and connections of the optronics must be able to withstand extreme environmental conditions such as dust, water and shock. The goal here is to achieve the highest possible IP rating for protection against damage and failure.

4. **Reliability with the smallest foot-print:** The connection solutions to be used must also lock securely in confined spaces without placing a long-term strain on the optronics. Conventional push-pull mechanisms increase the leverage effect on the connection due to their design and can therefore impair stability, especially in situations with vibration and shocks.

To meet the requirements of such highly innovative optronics, ODU has developed best-in-class connection solutions that exceed standards in performance, reliability and robustness.

The ODU-AMC® connection solutions with 5-finger coding are many times more robust than conventional half-shell coded systems. They offer reliable protection against twisting and breakage, and also enable the transmission of various data protocols for imaging applications such as HDMI, DisplayPort or coax.

ODU connectors are not only characterized by their break resistance and stability, but also meet the highest environmental standards. With an immersion depth of up to 20 meters and protection classes IP6K8 and IP6K9K, they offer reliable protection against water, dust and other environmental influences. This makes them ideally suited for use in harsh environments without reducing the performance of the optronics.

ODU as an experienced provider of interconnectivity

In addition, ODU offers comprehensive support for manufacturers of vision systems and associated accessories, including battery pack manufacturers. The solutions enable improved cross-platform functionality and are equipped with a STANAG 4695 solution for connection to portable battery systems (PDUs) for soldiers.

ODU has many years of experience and is a proven supplier for major OCCAR procurement projects in the field of night vision equipment for the German and Belgian armed forces. ODU is also the main supplier for one of the largest projects for the integration of augmented reality in the US armed forces.

Specialized solutions for hermetically sealed applications

To improve the service life and reliability of the optronics, they are often filled with inert gas such as nitrogen or argon to eliminate an oxygen-containing atmosphere. This prevents the systems from misting up and protects the internal electronics and components from corrosion. Through decades of collaboration with customers, ODU offers extensive experience in the development of customized connection solutions.

ODU circular connectors as optimal components for optronics

The state-of-the-art ODU circular connectors integrate seamlessly into the particularly demanding field of military optronics and offer a reliable, high-performance connection solution. With ODU, customers can rely on innovative and high-quality connections that ensure the safety and effectiveness of their optronics.

ODU Group: global representation with perfect connections

The ODU Group is one of the world's leading suppliers of connector systems, employing 2,700 people around the world. In addition to its company headquarters in Muehldorf a. Inn (Germany), ODU also has an international distribution network, production and product development sites in Sibiu/Romania, Shanghai/China, Tijuana/Mexico and Camarillo/USA. 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 Austria, China, Denmark, France, Germany, Hong Kong, Italy, Japan, Korea, 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