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PRESS RELEASE

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CONNECTION TECHNOLOGIES FOR EXTREME OPERATING CONDITIONS

Flexible interface solutions for industry and defense

USB-C: Bridge between civilian applications and military requirements

In recent years, **USB-C** has established itself as the global standard for transferring data and power and is increasingly replacing older interfaces such as USB-A. **The symmetrical style, high data rates and support for data protocols** make USB-C particularly attractive for civil applications in consumer electronics and industry. In addition to smartphones, laptops and peripheral devices, more and more industrial systems are also relying on the versatile plug to standardize interfaces and reduce logistical complexity.

Due to its advantages and wide availability, USB-C is now also gaining importance in the military sector. The higher requirements for field systems are reflected above all in the relevance of data integrity and the resilience of the connections, which makes adjustment of the existing interface unavoidable. Two solutions have currently established themselves on the market:

- **Interface solutions for extreme operating conditions** that can partially or fully map the transmission properties of the standard via **individually designed contact arrangements**
- **USB-C-Interfaces** that are installed in specially protected enclosures and can therefore be better protected against external influences

Security aspect of USB-C as an individual interface

Individual contact arrangements offer several advantages over a standardized interface. This includes easier adjustment to application requirements as well as maintenance and repair processes. The individuality of the interface makes unauthorized access to the system from outside even more difficult, as physically connecting external devices is more complicated for potential attackers.

ODU AMC® High-Density as a solution for power and data rates

As a counterpart to the standard interface, **ODU AMC® High-Density** connectors offer a compact and powerful solution for power and data rates in demanding environments. Their high contact density allows high currents to be transmitted in a small space, making them ideal for confined or mobile military systems. The robust design was developed for insertion under extreme conditions and can withstand even strong vibrations, moisture, dust and considerable temperature fluctuations from **-40° C to +85° C**. With **IP68 / IP6K9K**, the system is also permanently protected against the ingress of water, even during high-pressure cleaning or submersion. Furthermore, the seamless **EMC shielding** ensures reliable and interference-free signal transmission even in environments with high electromagnetic interference. Maximum flexibility is ensured by a **break-away function** that enables quick disconnection in an emergency - alternatively an additional **screw-lock function**, a robust solution for permanently fixed connections.



The ODU AMC® High-Density is a USB-C interface that offers a robust peripheral connection via USB-C without any changes to devices. Ideal for powering battery systems, notebooks, handhelds and rugged devices.

Advantages in military inserts

The ODU AMC® High-Density is suitable for fast charging and a reliable power supply for devices such as battery systems, notebooks, handhelds and rugged devices. Its most important advantages include:

- **Space and weight savings** thanks to a compact outer diameter of just 12.8 mm and an angled 90° overmolded USB-C plug - crucial for mobile systems
- **Maximum flexibility and convenience** thanks to cable lengths of up to 4 meters in total for plug and receptacle

- **Power transmission** up to 5 A
- **Data rates** up to 480 Mbit/s
- **Robust design for -40° C to +85° C and 5,000 mating cycles**

Conclusion

Both **USB-C** and **ODU AMC® High-Density** connectors show how modern interface technology can be adapted to different requirements - from everyday civilian applications to highly specialized military inserts. While USB-C impresses with its universal applicability and simple integration, ODU AMC® High-Density connectors offer a solution specially designed for extreme operating conditions with high contact density, robust construction and versatile protection mechanisms. The combination of **compact style, flexible system integration and reliable performance** proves to be a decisive advantage, particularly in the military environment. The clear differentiation and targeted selection of the appropriate connection technology - depending on the application scenario - is therefore a central factor for the efficiency, safety and future viability of modern systems.

ODU Group: Global representation with perfect connections

ODU is one of the leading international suppliers of connector systems and employs around 2,700 employees worldwide. In addition to its company headquarters in Muehldorf a. Further production and product development sites are located 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, molding, stamping, turning, surface engineering, assembly, and cable assembly. The ODU group sells its products globally through an international distribution network This includes its own sales companies in China, Denmark, Germany, France, Hong Kong, Italy, Japan, Korea, Austria, Sweden, the UK and the USA, as well as numerous global sales partners. Connectors from ODU ensure the reliable transmission of power, signals, data and media in numerous demanding application areas: in medical technology, military and security technology, automotive as well as in industrial electronics or test and measurement.

