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PRESS RELEASE

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Protection against electric shock according to IEC 60601-1 Implementation of the standard for connectors

Connectors for medical devices must meet certain requirements. In addition to application-specific functional features such as number of poles, autoclavability, IP protection and current capability, precautions can also be taken to protect the patient (MOPP - Means of Patient Protection) and the operator (MOOP - Means of Operator Protection). These are regulated in IEC 60601-1 to reduce the risk of electric shock as much as possible. Since medical electrical equipment and systems are both connected to the power supply and come into direct contact with the patient, even minimal leakage currents can be life-threatening for weakened individuals. Also, the operators of the medical equipment, usually the medical staff, must not be endangered by the transmission of the current. The requirements for patient protection are higher than for user protection. As soon as electrical devices come into contact with the patient or are used close to the patient, the highest possible degree of protection (2 MOPP) is required.

IEC 60601-1 requires manufacturers of medical electrical equipment and systems to ensure that they function in an all-around safe and reliable manner. On the one hand, the requirements can be solved by selecting special electronic components and integrating them into the power supply, control or signal generator of the device. On the other hand, the standard can be implemented by the connector, which already takes into account the higher clearance and creepage distances in the connector design.

The implementation via the power supply or the subsequent electronics seems easier at first moment. However, specially certified components must be used that meet the increased safety requirements. This involves a great deal of work for the medical device manufacturer in setting up the electronics and the associated documentation. As a purely



mechanical solution, the plug-in connection offers advantages in that the clearance and creepage distances are ensured via the design. There is no dependence on the service life of the electronic components. The mechanics remain unchanged and are permanently reliable. In this way, compliance with IEC 60601-1 facilitates approval of the medical device and also saves time during product launch.

ODU connectors can be used in medical electrical equipment and systems to transmit signals, high current, high voltage, RF signals (coax), medical gases and fluids, data rates, and light waves. ODU offers IEC 60601-1 compliant circular connectors available in either a plastic (ODU MEDI-SNAP®) or a rugged metal (ODU MINI-SNAP®) housing. The ODU MINI-SNAP® is particularly well suited for applications with higher mechanical loads or extended electrical shielding requirements. In the case of the plastic series, ODU MEDI-SNAP®, the advantages are u.a. in the lower weight, touch protection and the variety of possible color combinations. This allows safe and intuitive use and avoids getting stuck in the wrong place due to the color assignment. The ODU connector portfolio is rounded off with optional cable assembly, u.a. with silicone overmolding.

Decades of experience in the medical industry combined with state-of-the-art technology ensure we can develop your connectors to perfection. Whether in diagnostics, therapy, hybrid operating rooms or patient monitoring. ODU connectors stand for consistent failure protection and reliability in everyday medical use. Our connectors, cables, and housings are characterized by extreme temperature and chemical resistance – and guarantee reliable tightness, including in compliance with high protection classes.

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.