Solutions for the medical industry

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INTRODUCTION
Stäubli – a safe connection

Connectors for medical technology
In the medical industry, absolute reliability of all components is of paramount importance. In operating rooms and for life-support machines as well as in medical practices and for mobile applications, fail-safe functioning and permanent availability of medical technology systems are of crucial importance. Especially the electrical connections are vital for safe operation.

Modern operating rooms, with mobile medical device trolleys, modular equipment, and a trend toward outpatient treatment at home, require connections that are easy to handle and secure to connect, even by non-experts.

A safe connection
For more than 50 years, Stäubli has been producing connectors based on the MULTILAM contact element technology, which is characterized by high levels of reliability and efficiency and low contact resistance. Connectors with MULTILAM enable maintenance-free operation, even with high numbers of connection cycles. Touch-protected connections and sterilizable insulation materials are used to meet the special requirements of medical technology.

Tailored solutions
A wide range of different products, with modular single- and multi-pole connector systems and contact elements based on slide-in systems, open up various of possibilities. However, if no standard product meets the needs, Stäubli works together with the customer to develop tailored solutions for specific applications, from the design through to the finished product.

Complete tested systems from a single source
Stäubli produces customer-specific assembled connectors and components for medical technology. The finished components are fully tested on an automated test bench and delivered as a fully tested assembly.
Components for medical technology

Connectors with MULTILAM contact technology are known for their reliability and durability. Depending on the application, the contact elements are touch-protected, sterilizable, or, if required, gold-plated, as standard components or customer-specific development for secure connections.

**Sockets for dental technology**
Gold-plated panel-mount socket in the micromotor of a dental hand drill with touchscreen controls and adjustable LED lighting. The micromotor with the built-in socket is sterilizable, and the socket ensures reliable current transmission even at high numbers of connection cycles.

**Contact element for operating theater lighting**
Customer-specific contact element in the operating theater lighting unit with gas discharge technology. The whole lighting unit can be replaced in just a few simple steps when servicing is required.
Electroencephalography (EEG) and electrocardiography (ECG)

The measurement of brain waves and the activity of the heart records and amplifies very low currents in the μV range (EEG) and in the mV range (ECG), respectively. Gold-plated contacts with MULTILAM have low, constant contact resistances which ensure that measurement results remain accurate.

Connectors for EEG ear electrodes
Gold-plated connectors to connect the reference electrodes for reliable, error-free voltage transmission.

Connectors for ECG connection cable
Touch-protected connector on a four-wire, color-coded connection cable.
Electrosurgery uses high-frequency alternating currents. The high current density within a small space produces a thermal effect that is used for precision cutting of tissue and hemostasis. High safety standards make electrosurgery a safe method of surgery. This also requires reliable connection and disconnection of the current.

Socket for foot switch
Customer-specific panel-mount socket in sterilizable foot switches for the connecting cable to surgical devices. The foot switches allow precise, reliable operation of surgical devices.

Connectors for connection cable
Customer-specific MULTILAM plug in a three-pole connector for connecting instruments to surgical devices.

Accessories for electrodes
Customer-specific contact part in an adapter for monopolar electrode hand pencils. This means various active electrodes can be integrated in the same hand pencil.
Potential equalization

Potential equalization aims to equalize potential from various metal components that can be touched at the same time. Furthermore, it can reduce potential differences that may arise during use between the body, the device, and other conductive components. The special design of potential equalization connectors prevents accidental loosening but allows the connection to be disconnected without using tools.

Potential equalization in electronic medical devices
A panel receptacle with a yellow-green colored ring and built-in plug is used in operating tables and chairs, for example. This enables simple, quick, and reliable potential equalization.

Potential equalization in medical power strips
Potential equalization connector with colored marking ring and assembly accessories in a multiple power strip for the connection of medical devices, for example in operating rooms. The power strip can be used as a local potential equalization distributor at the same time.
Potential equalization in hospitals and medical practices

Connectors, sockets, connecting leads, and multi-pole connectors for the reliable connection of medical devices to supply systems.

Connectors and sockets
Panel receptacles with built-in plugs and right-angled sockets with connecting lead.

Connecting leads
Highly flexible assembled connecting leads with yellow-green insulation and right-angled sockets at both ends.

Multi-pole connector
Plug strip with panel-mount sockets and highly flexible extension lead with right-angled socket.
COMBITAC

Configurable Modular Connectors

The CombiTac modular connector system allows individual configuration of application-specific connectors.

Modules for signals and data up to 10 Gbit/s, current output up to 300 A, high voltage up to 5 kV, compressed air, liquids, optical fiber, and more can all be combined.

The frames and casing shown are in standard colors. Other colors and configurations on request.

Connection of power supplies and batteries
A power supply provides power to the detectors on a computer tomograph. Laboratory devices and operating tables are supplied by means of battery packs. If necessary, the power supply can be replaced or the charging station started up.

The connections for the power supply and signal transmission can be fitted into a very compact connector. The electrical contacts with MULTILAM contact technology are designed for high numbers of connection cycles and are easy to connect thanks to the floating bearing.

Connection of mobile devices and modular components
Modern operating theaters are designed on a modular basis and fitted out specifically for the task at hand. Mobile surgery and anesthesia devices are connected to the supply unit via CombiTac. Even complete medical device trolleys can be quickly connected and disconnected in a single step.

The required signal, data, and power contacts and the compressed air and fluid couplings can be accommodated in CombiTac.
Signal connectors
Module with high packing density to allow a maximum number of contacts within a small space. The protection wall on the pin carrier protects the contacts from mechanical damage and at the same time serves as a coding to prevent incorrect connections. A compact connector for signal transmission in medical devices.

Connector for mobile devices
The CombiTac housing allows simple, safe connection of mobile diagnostics, monitoring, and treatment devices. Various DIN housing sizes with side or straight cable input are available as standard. Other designs and colors on request. Additional safety is provided by a locking lever and a coding option.
Control and supply for medical ergometer

Ergometers are used for treatment, rehabilitation, and cardiological training and for medical stress tests. A separate control and supply unit is connected to the treadmill via connectors. Automatic lubrication after a predefined distance or number of hours of use reduces the amount of maintenance work required.

Three different CombiTac units connect the energy supply, the treadmill controls, the automatic oil volume controls, and the oil supply. The connectors allow easy and safe installation of the ergometers.
ASSEMBLIES

Assemblies and assembled leads

Socket modules for electrosurgery
Various modules in surgical devices are used to connect a range of instruments. Below is a socket module for the connection of single-pole active electrodes.

Assemblies for surgical devices
Connectors for power supply to modular surgical devices. Different connector modules are used depending on the application. The connector modules are touch-protected and provide safe and reliable power supply.
Global presence of the Stäubli Group

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