



Figures steute Schaltgeräte

A selection from the steute Meditec range of control systems for medical equipment. Main customers include the manufacturers of devices for diagnostics and imaging.



The current focus is on customised control units which increasingly communicate with their devices wirelessly rather than cable.

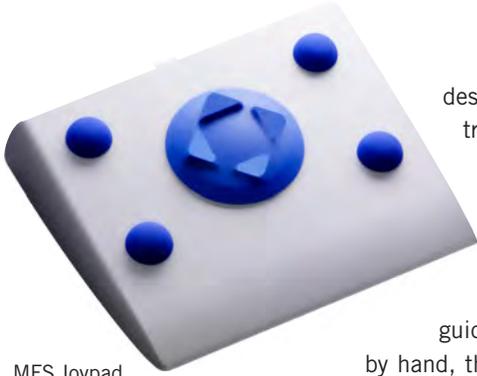
# Currently in Focus: Wireless Technology and Customised User Interfaces

**W**hat requirements do developers, manufacturers and users of imaging systems have regarding the man-machine interface, in other words the unit controlling the device? First of all – and this is true of all medical equipment – a high level of hygiene is paramount. Control systems therefore ideally need to be very easy to clean, and be designed in such a way as to prevent the formation of dirt traps. Equally as important as hygiene is ergonomic comfort: the physician must be in a position to operate the device in question comfortably and without fatigue in order to dedicate

him/herself completely to the task at hand – namely the diagnosis or treatment of patients. In this context of patient safety, intuitive operability of devices is also a crucial criterion.

## Classic: two-pedal foot control for endoscopes

steute Meditec has been developing user interfaces for medical equipment in line with these principles for more than two decades. One focus of development work is imaging techniques. Depending on the technology used and the functionality



MFS Joypad with 4 push buttons

desired, the control units are more or less complex, and since the operator usually guides the devices

by hand, the controls are usually for the foot. A classic control system for medical imaging is the

two-pedal foot control which steute manufactures in large numbers and sells to manufacturers of endoscopes, amongst others. For devices which combine imaging and surgery, or in conjunction with the removal of tissue samples, the two pedals might issue the commands „cut“ and „coagulate“, for example. The middle button can, amongst other things, be used for the function „swap“, i.e. to swap to a preselection of functions from the menu. Also available are variants with a metal stirrup allowing easier positioning with the foot.

## Wireless instead of cables

Communication between the control unit and the device traditionally occurs through cables. Increasingly, however, wireless communication is becoming the norm. For this task steute has developed the wireless standard SW 2.4-MED. It corresponds

to the relevant demands of medical equipment and provides significant advantages as far as the abovementioned aspects are concerned. Doing away with cables namely eliminates an issue in the OR which is hygienically critical. At the same time, it improves ergonomic comfort because foot controls can be positioned in a better way – and there is no risk of surgery staff tripping over the cables. In addition, communication with the devices becomes more flexible. This function will feature more intensively in the future.

## Classic or Custom?

The company recently restructured its entire product range and divided it into the two product lines „Classic“ and „Custom“. Device manufacturers now have the choice between hand and foot controls in the „Classic“ product line, which are configured from a modular system of tried-and-tested components, and the user interfaces in the „Custom“ range, for individual applications or manufacturers.

The „Classic“ product line is based on the broad range of standard components. Housings, actuators and switching inserts can be configured to produce application-oriented solutions. The use of tried-and-tested modules reduces initial costs, shortens the „time-to-market“ factor and reduces the effort necessary to create documentation in accordance with the guidelines for medical products. »



For the operation of endoscopes: wireless two-pedal foot control.

For the handling of surgical microscopes, a foot control has been developed, which, in addition to the central functions zoom and focus, also has a joystick for fine positioning of the microscope, as well as six further integrated control elements. Overall, the operator can control fourteen device functions with this one user interface. A central foot bar creates an ergonomic resting position for users between functions.

### Operation of Endoscopic Assist Devices

Some completely new device categories have recently emerged, including in the field of diagnostics. For example, endoscopic cameras are no longer exclusively held and positioned by OR or surgery staff. Endoscopes now exist where an assist device assumes this task with several degrees of freedom – highly precisely and without tiring.

For the operation of this system, steute Meditec has developed a “Custom“ actuator in collaboration with the manufacturer. Wireless technology, with its flexible assignment of functions, in combination with the menu structure of user interfaces of modern diagnostic devices, creates the prerequisites for a next step which has not yet been fully realised, but which is certain to become reality in the near future. It is conceivable and also technically viable that several devices will be able to be controlled by one and the same actuator. ■



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