

Interview, published in: MEDengineering (07/2017)

A standard for intuitive operation

Wireless foot controls for ergonomic and safe machine operation

MED: Mr. Becker, which target group are you hoping to reach with your new controls?

Guido Becker: Multifunctional foot controls are used to position and operate medical equipment. When new medical devices come onto the market, initial quantities are usually low. For this reason, manufacturers tend to shy away from investing in customised solutions and prefer to save money by opting for standard switches instead. The price paid for this decision is a compromise in both usability and functionality. We are now closing the gap between customised and standard solutions with our affordable yet modular MFS-MED GP712 multifunctional switch series, which we shall also be presenting at the Medica.



steute foot control MFS-MED GP712 with joypad and rocker switch

The steute Schaltgeräte company has developed a new foot control particularly suited to niche medical applications. Guido Becker, Product Manager Meditec at steute Schaltgeräte GmbH & Co. KG, explained the features of these newly developed interfaces to our editorial team.

MED: Which goals did you have in mind with this new development?

Guido Becker: The requirements which our product management presented to the steute developers can be summed up in 5 words: multifunctional, affordable, variable, hygienic, ergonomic. And all of these requirements have been realised. The switches are multifunctional because they can be used for many different tasks. The housings are affordable because they are manufactured from thermoplastic, while a special manufacturing technique makes the system extremely robust. Variability is achieved by the option of fitting the foot control with different actuators - according to customer wishes and without any extra tooling costs. The hygienically sealed housing is very easy to clean using wipe disinfection. The development team took the results of different relevant studies and simulations into consideration when addressing ergonomic comfort. Because some surgeons stand while working and others sit, their requirements differ, and so in order to satisfy both groups

with one standard product, the angle of the switching element was designed to correspond ergonomically to different user positions.



steute multifunction switch with 3 rocker switches

MED: What additional advantages does the system offer?

Guido Becker: The ergonomic housing forms the basis, and then the modular design facilitates flexible adaptation of the interface to individual user requirements. For example, the newly developed round joypad. Besides the four functions up, down, left and right, the joypad also permits diagonal switching across the X and Y axes. This means that a total of 8 functions are available. The rocker switch has also undergone new development, is very comfortable in its actuation and provides excellent tactile feedback. As an optional extra, the user interface can be fitted with a protective bar which doubles as a foot bar, making the foot control easy to position under the operating table without needing to use your hands. In addition, every switch is fitted with two redundant switching contacts in order to guarantee initial error detection.

MED: Have you got some application examples for us?

Guido Becker: The multifunction switch can be used in many different ways. For example, the foot control can be used to position surgical microscopes as required, or to move patient tables and chairs up and down. Another example is control of a surgical robot. One customer of ours has developed a robot arm which holds a camera very still inside the abdomen of a patient during surgery. This robot arm is positioned using our foot control.



Modular foot control with 6 push buttons

MED: As a medical device, the multifunction switch will of course need to have all the relevant approvals....

Guido Becker: The user interface meets the requirements of standards IEC 60601-1; UL 60601-1 and bears the CE seal in accordance with the medical products law [93/42/EWG]. In addition, the foot control system is categorised in protection classes IP X6 and IP X8 according to IEC 60529.

MED: Thank you for talking to us, Mr. Becker.

The interview was conducted by Carola Tesche.

Images: steute Schaltgeräte GmbH & Co. KG