



Process visualization directly at the machine remains essential. To keep pace with increasing complexity well into the future, Sigmatek recently introduced a **new generation of multitouch HMIs** with the web panels of the xx20 series.

Future-Proof Functionality and Ergonomics

New Generation of HMIs for Visualization and Operation: At the all about automation trade show in Wels, Sigmatek is introducing a new generation of multi-touch panels for machine operation and monitoring. The operating units give machines and systems a modern look and, thanks to high-performance processors and a Linux-based real-time operating system, are suitable for extensive HTML5 visualizations. The NewCen web panels enable smart operating concepts that ensure a positive user experience with good ergonomics despite increasing complexity. By Peter Kempfner, x-technik

The degree of automation in manufacturing facilities continues to rise. Machines and systems are connected within the Industrial Internet of Things (IIoT) to equip them with the ability to adapt autonomously to changing requirements. On the one hand, human intervention should be reduced to a minimum,

while on the other hand, it should also be possible to control them remotely from an office computer or via a mobile device.

Nevertheless, the human-machine interface (HMI) for visualization and operation directly at the location of the action has not lost its



The xx20 panels, featuring a 16:9 aspect ratio, glass multitouch, a slim aluminum frame, and IP65-rated front protection, look great in both portrait and landscape formats.

significance. Quite the contrary: Especially in times of the ongoing shortage of skilled workers, process visualization is perceived as a key functional feature of the machine. Coherent, ergonomic concepts for operation and monitoring are crucial for user acceptance and can contribute to high operational stability by preventing errors. Furthermore, they serve as a unique selling point for the machine manufacturer in a competitive market.

High demands on ease of use

The human machine interface should be modern, clearly structured, and above all user-friendly. To this end, gesture-based control – familiar from smartphones and tablets – has become the standard. It enables intuitive and convenient operating concepts with excellent clarity. Widescreen display geometry with a 16:9 aspect ratio, replacing the former 4:3, is also well established.

Originally designed to optimally display double page spreads of documents, this geometry has become popular in technical applications due to the ability to display multiple menus side by side. “Especially as HMIs for machines, widescreen panels are frequently used in 9:16 portrait

format,” notes Thomas Rienessl, Head of Sales for Austria at Sigmatek GmbH & Co KG. “This allows the available space on the machine to be used optimally and the elements can be arranged clearly and ergonomically.”

Since 2019, Sigmatek has therefore been offering its customers widescreen operating panels with multitouch technology to improve the ergonomics and appearance of their machines, which can be used in both landscape and portrait orientation. Now, the automation system manufacturer based in Salzburg is introducing a completely newly developed generation.

Web panels for every task

The scope and complexity of a machine directly influence the requirements for operating devices and determine the need for visualization. Furthermore, for larger machines, the practice of providing a operating unit at only one location – which was common in the past – has long since been abandoned in the interest of ergonomics. It is now common practice to install additional panels on the machine alongside the main HMI to allow operation from various locations. »



Sigmatek's NewGen operating panels feature a modern, slim design and offer impressive visualization capabilities. The TP xx20 mounting arm panels, designed for VESA 75/100 mounting, have an IP54 protection rating on the rear.

The installation situation also varies from machine to machine. Therefore, operating panels are required not only in various sizes (screen diagonals) but also with options for flush mounting in enclosure fronts or for swing arm mounting. Furthermore, mobile panels have become indispensable for flexible operating situations, such as during maintenance inside the machine.

The new generation of Sigmatek's multitouch operating panels is available in the xx20 series as both a built-in panel (EP) and for swing arm mounting (TP), with screen diagonals of 10.1, 15.6, 18.5, and 21.5 inches. On the front, the web-HMI's – featuring a silver anodized aluminum frame – meet protection class IP65 according to EN 60529 (dust-tight, protection against water jets from any angle). On the rear, the ET xx20 built-in panels meet protection class IP20, while the TP xx20 swing arm panels, designed for VESA 75/100 mounting, meet IP54.

For these high-quality operating panels, Sigmatek relies on state-of-the-art Projective Capacitive Touch (PCT) technology, in which the sensors are protected and mounted on the back of the robust, continuous glass front. The devices are fanless and maintenance-free, and feature two Gigabit Ethernet (10/100/1000) ports and four USB 3.0 interfaces. An uninterruptible power supply helps bridge short-term voltage drops and, in the event of a power failure, enables the system to be shut down in an orderly manner.

Together with the compact S-DIAS control and I/O system, the operating panels form an efficient, high-performance solution for production machines based on Industry 4.0 principles. Since the new web panels also support communication standards such as OPC UA or MQTT, they are equally suitable for use with third-party controllers or industrial PCs.



We asked Thomas Rienessl

What advantages do the new xx20 series web panels offer machine developers?

Sophisticated, web-based HMI projects created using HTML5, CSS3, or JavaScript make the user interface independent of the control application and the hardware used. This gives machine developers great freedom and many opportunities to make machine operation more ergonomic despite increasing complexity. They can also gradually enhance the software of machines once developed and add further functions. With high CPU performance and a lean Linux-based real-time operating system, the new generation of HMI panels ensures the future-viability of machine developments started today.

How wide is the range of the new widescreen panels?

The NewGen xx20 panels are available in four built-in and four swing arm variants each, ranging from 10.1 to 21.5 inches. Thanks to software compatibility, they can be supplemented with smaller-sized panels starting at 7 inches and mobile panels within the same project. For series application, we also customize the operating elements to meet the specific requirements of machine builders.

How do the xx20 series web panels impact customer applications?

Sigmatek offers a complete range of control, safety, visualization, and drive products, including software, enabling the design of a tailor made solution for the automation of machines and systems. Since the NewGen operating panels support communication standards such as OPC UA and MQTT, they are also ideally suited as visualization components in machines and systems that use third-party controllers. Their guiding principle is to remain competitive both in complete automation solutions and in each individual discipline – and this has once again been impressively achieved in the field of HMIs.

Future-proof visualization

The growing importance of user ergonomics is leading to increasingly sophisticated user interface designs and is changing the requirements for panel hardware. Furthermore, machines are no longer developed once as homogeneous units. Software in particular, which today constitutes a significant part of the overall machine, is continuously evolving and requires ever more resources, as functionality increases,

To create visualization projects, Sigmatek customers can choose between the established HMI tool Lasal Screen and Lasal VISUDesigner for building web based visualizations using HTML5, CSS3, and JavaScript. Both tools are also suitable for more complex architectures for networked, smart factories. Sigmatek works with flexible dual- and multi-CPU solutions in which visualization and sequence control are separated.

To provide a high-performance platform specifically for more demanding HTML5 visualization solutions, Sigmatek's xx20 generation of built-in and swing-arm HMIs are equipped with powerful Intel processors featuring four cores, as well as 4 GB of DDR4 RAM and 128 GB of M.2 SATA storage. Their lean, Linux-based real-time operating system guarantees very smooth page loading even for web based visualizations created using HTML5, CSS3, or JavaScript.

Software projects implemented using Lasal can be ported unchanged to all Sigmatek visualization products. This also allows, for example, the new operating panels to be supplemented with models featuring smaller screen sizes starting at 7 inches and with mobile panels. These are available with cable or wireless connection and, optionally, with safety functions (SIL 3, PL e).

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