A positive operator experience in combination with strong visualization is also in demand in the machine hall.

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Get in Multi-touch

Operating panels for demanding HMI tasks

Young, powerful, attractive seeking ... challenging tasks in a modern machine concept. By that are meant the multi-touch operating panels of the ETT series from SIGMATEK, which are applying for demanding HMI jobs.

In the industry, safe operation and monitoring are the central tasks of a human-machine interface. If this basic function is met, numerous other factors come into play when selecting the right operating panel; since these serve as the business card of the machine or system. With a user-friendly operating interface that unifies industrial suitability, usability and innovation, manufacturers of machines and systems can inspire their customers. A positive operating experience in combination with an attractive look has an influence on the purchasing decision. With the simultaneous detection of multiple touch positions and gesture control, so-called multi-touch functions, the iPhone revolutionized the operating concept in 2007. In the meantime, this paradigm change has found also its way into machine halls. Multi-touch panels immediately give machines and systems a modern look, they convey „zeitgeist“ and are therewith, a distinguishing feature. Accordingly, the interest on the machine manufacturing market is high. Based on multi-touch technology, entire operating concepts and elements can be designed, which provide a positive operating experience. It is thereby essential that the hardware, software and operating system are designed for it. SIGMATEK had already entered the multi-touch world in 2011 – with a dual-touch panel. The Salzburg complete solutions provider however, waited with the introduction of a multi-touch panel series to the market until the still-young touch technology had matured. In particular, the resistance to disruptive factors in harsh industrial environments, such as EMC effects, could be increased significantly over the past years.

Complex Visualizations Brilliantly Produced

SIGMATEK implements projective capacitive touch technology (PCT), by which the sensors are protected on the back of the robust, solid surface of the glass front.
With the ETT series, industry-suited multi-touch panels that optimally unify the multi-touch functions in hard and software are provided. Currently, the panels are available in five display sizes: 8.4 – 10.4 – 12.1 – 15 and 19 inches in classic 4:3 format. This enables a simple and fast changeover to multi-touch technology, without immediately requiring a complete reconfiguration of the visualization. Equipped with an ARM-based EDGE2 Technology dual-core processor, the ETT panels provide high performance (2x 800 MHz) with low power usage. 512 MB of DDR RAM for internal program and data memory, 512-MB

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The broad selection of ETT multi-touch panels currently ranges from 8.4 to 19 inches. Multi-finger touch applications can be comfortably created with LASAL SCREEN.

storage (microSD) for recipes, alarm management and data logging, as well as a 2D and 3D graphics accelerator are included in the standard configurations. Even with graphically complex operating surfaces, the ETTs are in their métier - in addition, the high-resolution TFT displays with great color brilliance provide convincing visualization. The interfaces are selected to ensure that the HMIs fit in practically any machine and system configuration: 2x Ethernet, 2x USB 2.0, 1x USB OTG (On-the-Go) and 1x CAN bus. 8 digital in and outputs each are also on board, which can be used for command and signaling devices such as toggle switches, signal towers and operating mode switches.

Modern and with Added Value

The ETT multi-touch panels present a modern and minimalistic appearance. With the frameless design, SIGMATEK has managed to bring the price of capacitive operating panels closer to that of the resistive panels. In addition to the standard configuration, customer-specific designs with frames are also possible. Wide screen panels are already in planning. With this, large display diagonals up to 24 inches will be available.
A back-lightable logo gives the panel that special touch. The monochrome logo backlighting can be controlled via the application in any color (RGB). The elegant, minimalistic look of the HMI can therefore be perfectly integrated into the corporate design of the machine or system. The logo also lights when the touch screen goes into idle mode. An application-specific function can be created to make the backlit logo blink or display in a different color when an error occurs – a clever distinguishing feature with added value.

Fit for Industrial Application

The streamlined multi-touch panels, with a seamless glass touch screen, easily find space with only 48 mm installation depth. They can be mounted directly on the machine, an operating console or integrated into the control cabinet. The most varying fields of application are therewith open to the innovative human-machine interface. All connections are located on the bottom, which also simplifies installation and maintenance. The ETTs operate without a fan. Reliability, robustness and electromagnetic compatibility (EMC) are essential properties of the SIGMATEK HMIs. The new panel series with IP65 protection has an integrated 4-mm glass surface. It is completely dust-proof and easy to clean. During development, attention was paid to ensure that the displays, including sensors, were fit for industry and durable.

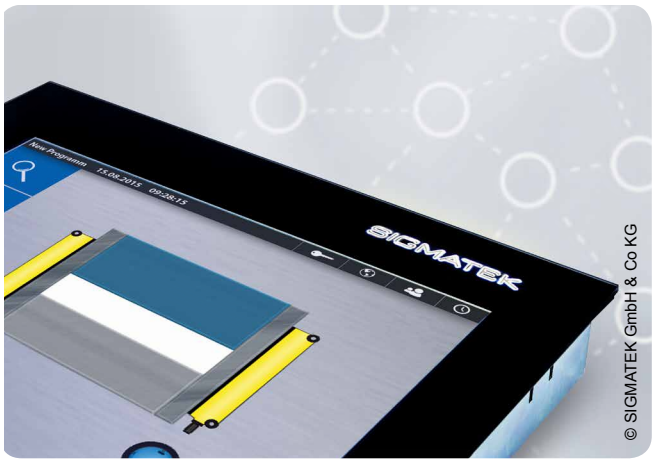
A Positive Operating Feel

The gestures, familiar from the consumer sector, also open completely new operating and design possibilities for the human-machine interfaces. Move or rotate objects, zoom in and out with two-finger expansion and compression, such as for characteristic curves or process images and swiping to scroll or page through lists, directories, settings and recipes. Multi-finger shortcuts can also be implemented. Via gesture control, operating concepts can be designed more flexibly, clearly and intuitively. Multi-finger or two-hand operation increases the operating safety and positive user experience. For critical control functions, operating errors can be avoided by requiring the operator to press two buttons at the same time – to activate functions for example, or to avoid changing values unintentionally. Operating steps can be easily performed on the smooth glass surface: up to 10-finger input, as well as the use of a stylus and thin gloves are possible.

A Question of Philosophy: Two and Multi-CPU Solution

The new multi-touch panel series is part of the scalable, modular system toolkit from SIGMATEK, which includes the I/O and control technology, visualization, drive technology and Safety – all unified on one engineering platform. The automation expert follows – especially for complex applications – the distributed intelligence approach, which provides the user with a high degree of freedom. With a single CPU solution, the danger exists that over its life cycle, the machine could be over-

With then new ETTs from SIGMATEK, it is possible to place the customer logo with monochrome backlighting (RGB).



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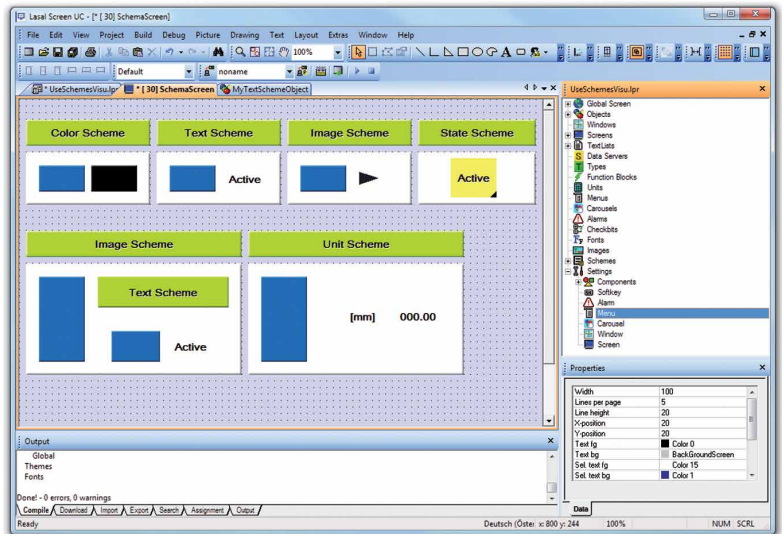

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The capacitive touch panels are equipped with a Linux-based operating system. The visualization with multi-touch functions can be quickly designed with the engineering

loaded. With a clean separation of process control and visualization – using a two or multi-CPU solution, the application is well equipped for the future. SIGMATEK uses thereby economic ARM-based processors so that the price of the multi-CPU solution is comparable to that of a single-CPU solution and superior in terms of flexibility.
Since the human-machine interface is the most vulnerable component of the control system, it makes sense to separate it from the process control. This ensures that the automation process runs smoothly, even when the operating unit might fail. Multi-CPU solutions enable a customer-specific system configuration. Each function unit performs exactly the task for which it was intended. The performance can be scaled as required and the system flexibly expanded or adapted to new requirements. Multi-CPU solutions make applications fit for Industry 4.0.

The Fitting Software Tool for Human-Machine Interaction

In addition to the high performance of the panels, the efficiency of the visualization software is key factor. Only when hard and software interact perfectly, multi-touch becomes a fully integrated operating concept. The operating system and software must support multi-touch functions and make them configurable. The SIGMATEK panels are delivered with a Linux-based real-time operating system and the object-oriented development tool LASAL, which is well equipped for the creation of intuitive multi-finger touch applications. Software-designed operating areas can be comfortable implemented with the tools LASAL CLASS and SCREEN. The HMI application structures are modularly constructed and scalable, so that they fit for different panel sizes and can be easily changed and expanded. Various machine sizes or types can use a uniform operator interface with an identical look and feel. Object orientation simplifies the modularization and reusability of the software enormously. It also ensures maximum clarity, so that not only the work of creating the software, but also for software maintenance is minimized. This is an essential factor, since the complexity of applications is continuously increasing and production machines or systems are in use for well over 10 years and therewith, the software as well. An integrated approach with a consistent design environment for control and visualization reduces engineering, as well as minimizes errors. When, as at SIGMATEK, motion control and Safety functions can be created with the same engineering tool, the highest engineering efficiency is ensured. LASAL supports the OPC-UA communications protocol, whereby manufacturer and platform-independent data exchange is possible. This provides the user with a high degree of freedom, especially in view of Industry 4.0.

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With an installation depth of only 4.8 cm and interfaces and connections located on the bottom, the multi-touch panel series is easy to install and maintain.