

intouch

Machinery • Edition 28/2021



inbrief • 2

Industry 4.0 – The 4th industrial revolution.

intechology • 4

Series 84 –
New IO-Link Touch.

infocus • 6

Innovative –
EAO E-Stop Switch
Configurator.

insider • 12

Industrial and UX-Design –
Better process, better
designed products.

Industry 4.0 – The 4th industrial revolution.

Editorial

Dear customers and partners,

Awarded ... Our 3D E-Stop Switch Configurator has won four awards at the "Best of Swiss Web Award 2021". In this edition of intouch, you will learn how we were able to shape this digitalisation project into a gold-worthy achievement, taking into account our EAO core values of "innovative, intuitive and reliable".

In our article on Industry 4.0, we would also like to show you how, in addition to the use of digital twins, cyber-physical systems, Big Data or IoT (Internet of Things) are having an impact on today's manufacturing world. In addition, we will present some new and optimised EAO solutions and show you ways to create your individual, user-optimised product variants. It will be interesting and informative.

And now enjoy reading!

David Kramer
Head of Corporate Communication

Cyber-physical systems, Big Data, and the Internet of Things (IoT) are shaping today's production environments.

Over the last 200 years, the production industry has been in a constant process of reinvention, and the way we work has been through continual revolutions, from the Industrial Revolution through technological development and digital transformation.

Industry 3.0 focused largely on automation. Production steps and hierarchies were defined using the automation pyramid, and individual tasks within the automated production process were assigned to each level.

Changes with Industry 4.0

Through technological evolution and, in particular, the industrial Internet of Things, the hierarchy levels depicted in the figure (p. 3) are now interconnected. The fourth industrial revolution, Industry 4.0, is characterised by a degree of automation which has progressed so far that machines can largely control themselves. Electrical signals are digitised into data and transmitted via data

networks, making spatial proximity or the physical connection between machines and processes irrelevant. Interconnectivity and flexibility are the order of the day.

Thanks to cyber-physical systems and the linking of devices, e.g. via cloud technologies, machines and processes can communicate and interact autonomously regardless of hierarchy level. Hot concepts such as Big Data and artificial intelligence help to further optimise and advance data exchange between units in order to enable intuitive and efficient interaction.

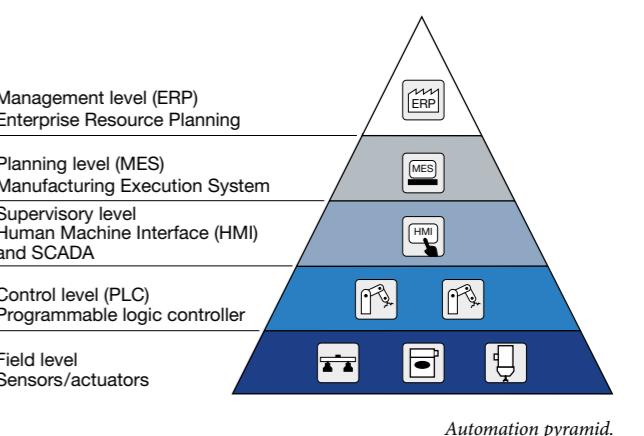
Advantages and opportunities of Industry 4.0

Industry 4.0 and the drivers behind this development are preparing the ground for a wide range of potential business models. Data is becoming central to day-to-day operations while also opening new doors. One example from the world of EAO is the 3D Configurator described on page 6. Thanks to organised, intelligent data collection, the customer enjoys the added value provided by the introduction of the "digital twin". Targeted analysis of data creates algorithms that advance the development of artificial intelligence. All this is tremendously exciting, and could make smart factories a reality. Alongside these many opportunities, companies also need to focus their attention in future on the issue of security: the Internet of Things as well as cloud-based data storage systems constitute vulnerabilities, so security measures will be of crucial importance.

EAO's journey into the future

With the new Series 84 IO-Link Touch, EAO is taking its first steps towards Industry 4.0. Thanks to the worldwide IO-Link communication interface and programmable connection options, the innovative HMIs can be networked with a high-tech machine system – for Industry 4.0 compatibility.

We are very excited about the developments and challenges ahead within the production industry, and look forward to tackling them head-on with you, our valued customers and partners.



International trade fairs 2022

Meet our experts and see the latest HMI technologies and solutions. Here you will find all information about our participation in international trade fairs:
www.eao.com/trade-fairs-and-exhibitions



EAO steps into Industry 4.0.





Switch into Industry 4.0 – Series 84 IO-Link Touch.

New Series 84 IO-Link Touch.

Switch into Industry 4.0 – the freely configurable, bright and capacitive IO-Link Touch opens up numerous new HMI application possibilities for a wide range of industrial applications.

With the advent of digitisation in the industrial sector, machine manufacturers can develop completely new machines and equipment. At the same time, this creates an even more intensive operating experience for the end user. However, to reap the benefits of digitisation, machine manufacturers must overcome demanding challenges, for instance in terms of system complexity or the enormous investment of time and money required to digitally transform their analogue machines. With the Series 84 IO-Link Touch, digital machine systems can be equipped and operated with HMIs easily and rapidly.

With its three HMI variants – standard, stainless steel and hygiene – the IO-Link Touch range offers actuators and indicators which are ideal for a wide range of applications in the mechanical engineering industry and far beyond.

Typical applications

- Automated production (smart factories)
- Controls and switch cabinets
- Food and beverage industry
- Packaging equipment
- Autonomous robot transport systems
- Monitoring stations for industrial conveyor belts

The many potential uses for the HMIs are based on a freely selectable configuration which can be precisely aligned to the respective application – from illumination to symbols to the switching function. For example, the illumination can switch on with a deliberate delay when actuated. Or HMI operational readiness can be signalled by green illumination which changes to yellow when actuated, and to red a few seconds later. The configuration remains stored on the HMI even with no power supplied.

Advantages

- Freely configurable HMIs with IO-Link interface (Industry 4.0)
- Optionally illuminated standard or custom symbols
- Ambient light adaptive RGB LED illumination in 16 million colours

- Capacitive actuation with different actuation sensitivities
- EHEDG certification, European Hygienic Engineering and Design Group (food industry approval)

Find out more about EAO's step into Industry 4.0 or order samples online at www.eao.com/84-io-link



The IO-Link Touch is ideally suited for a wide range of industrial applications.



Configure your individual emergency stop switch.

With EAO's E-Stop Switch Configurator, you can select from more than 130 components and accessories to create your individual control element – Which meets all the requirements of your applications.

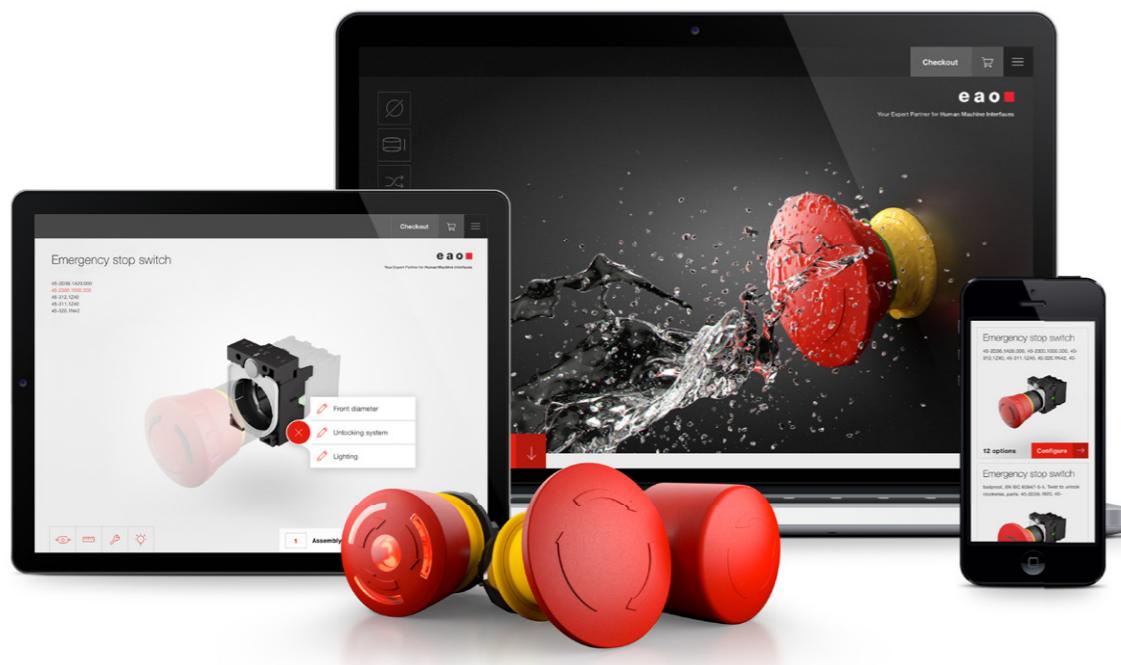
When it comes to emergency stop switches, engineers and designers face the challenge of selecting the appropriate switch for their application. Factors such as the user environment, the operating temperature and other aspects such as humidity, dust or vibration must be considered at the start of every design project. It goes without saying, but safety is perhaps one of the most critical issues, as it is imperative to understand the operator and human factor involved. Once the application is determined, and the functional requirements and user needs identified, it now comes down to selecting the proper control element.

EAO has created an interactive virtual 3D tool in the form of the E-Stop Switch Configurator to help engineers and designers intuitively configure modular products to meet their individual requirements.

EAO's E-Stop Switch Configurator – Intuitive use. Fast delivery time.

EAO's globally certified emergency stop switches are constructed from various components that can be configured in a variety of ways – but this flexibility can also lead to uncertainty when choosing the right product. The E-Stop Switch Configurator was developed to improve the customer experience. It offers access to more than 130 components and accessories that can be individually assembled to create more than 2000 different custom combinations.

To prevent mistakes in the ordering process, the system will only suggest compatible components, enabling customers to access the right product as quickly and efficiently as possible – and, thanks to the responsive user interface, this can be done from any device from a desktop PC to a mobile system.



The EAO project team is delighted to have won the "Best of Swiss Web Award 2021".

To make the end product more tangible, all components and product configurations are rendered server-side as photorealistic 3D representations and displayed in real time. Different material characteristics that, for example, affect surface texture or light reflections, are precisely simulated in line with their real-life equivalents. The product visualisation is further enhanced with various "Experience Views", where the appearance of the product in rotation can be simulated on a measurement grid, in its mounted position, or in darkness. Thanks to the additional Augmented Reality Feature, the digital products can even be positioned into real settings and individual use cases via mobile device and thus be tested.

The 3D configuration tool offers not only useful visualisation features but also an excellent user friendliness that takes into account the needs of different target groups. For example, CAD data is automatically generated for each selected

The EAO 3D Configurator wins four awards at the "Best of Swiss Web Award 2021":





Series 82 – Now with vivid LED illumination.

Series 82. With illuminated symbols.

Vivid and robust LED status indication.

Many HMI applications require status feedback to ensure that they function reliably or can be operated conveniently. For example, the user must be able to know at all times whether the machine or device is switched on or off. Such feedback is just as important in the food and beverage industry as it is with measurement machinery or medical devices.

In harsh operating conditions such as those found in heavy duty or special vehicles, visual HMI feedback is very often useful and sometimes even indispensable. Illuminated symbols for pushbuttons also provide quick and easily understood visual recognition of operational status.

Series 82 with illuminated symbols meets these requirements with vivid LED illumination. Whether for status indication or easy location, the red, green, blue, white or red/green LEDs with standard symbols (others on request) provide high-contrast, high-visibility illumination.

In all, symbol illumination is ideal for a variety of applications that impose strict requirements – in terms of design and functionality.

Advantages

- High-contrast, vivid illuminated symbols
- Robust, attractive and modern design
- High IP65/IP67 protection and long service life
- Single- or bi-colour LEDs available
- Standard symbols available (others on request)

Further information about Series 82 you find at www.eao.com/82



Overmoulded version of the Series 82.

Enhanced protection. Fast mounting.

EAO has extended the robust and attractive Series 82 with an overmoulded option and M12 connector.

It is common to expose actuators and indicators to extremely harsh operating conditions. For example in the food & beverage industry, where alkaline cleaning agents and corrosion severely affect HMIs. In addition, external factors in the form of hard-to-remove dirt, fine dust, along with severe vibrations and blunt impacts commonly encountered in heavy duty and special vehicles applications also require HMIs to offer a very high level of resistance.

The overmoulded version of the Series 82 is capable of meeting these strict requirements offering reliable enhanced protection. These attractively designed illuminated pushbuttons feature a housing made from SUS 316L stainless steel and a Tritan light guide resistant to cleaning agents. These design features provide protection against wear and ensure consistent clarity of both the dot and the ring illumination.

Advantages of the overmoulded version

- Complete IP67 protection for illuminated pushbuttons
- Tritan light guide resistant to cleaning agents
- Housing made of SUS 316L stainless steel
- High resistance to vibration and impact
- M12 connector for fast and resilient mounting

The switches utilise a robust M12 connector. This connection method saves customers time when it comes to mounting as well as enabling a highly resilient HMI connection. The rear of the device is also IP67 compliant thanks to the overmoulding of the switch and connector, ensuring that the HMI has complete and reliable protection. The overmoulded version also offers very high resistance to vibrations and impact.

Further information about Series 82 you find at www.eao.com/82



Series 61. Versatile in use.

EAO offers the modular and recognised Series 61, a versatile and modular switch range for complex industrial applications.



Picture right:
Accessories for Series 61
E-Stop compact: Mounting
and PCB adapters.

Picture below:
Series 61 –
Versatile in use.



Whether for applications with high temperature variations or mechanically demanding environments – the versatile Series 61 is always a good choice. With its modular construction and full selection of functions, you will find the right solution for any industrial application.

The modern design fits diverse applications and reflects the high quality of the series. The Series 61 also satisfies all functional requirements, for square, rectangular, round, flush or raised construction – it works seamlessly with practically any conceivable HMI function with 16mm or 22.3mm mounting cut-outs.

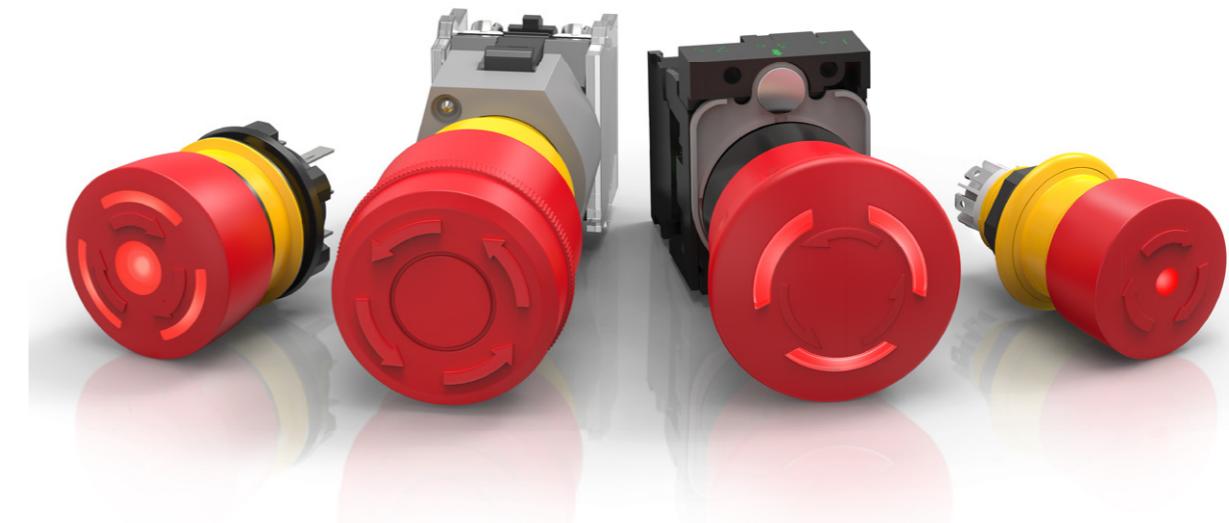
Make use of optionally engraved, hot-stamped or film labelling and enhance the already considerable visual appeal of the Series 61 even further.

The modular and modern design of the illuminated pushbuttons as an example satisfies functional requirements of all kinds, and enables easy integration into any type of control system.

Highlights

- Optional plastic or metal lens
- Flush or raised construction
- Compact design for 16mm and 22.3mm mounting cut-outs
- Illumination, optionally with symbol
- Customised labelling possible
- Range of switching elements and ease of mounting
- IP65 protection

Further information about Series 61 you find at www.eao.com/61



EAO's intuitive and reliable emergency stop and stop switches.

Emergency stop switches.

Do you have questions about the important regulations and industry standards that define the properties of emergency stop switches? Read all about the topic in our technical article.

Often discussed, often misunderstood: with emergency stop switches, the right choice can be critical in terms of human safety, the protection of machinery, and potential downstream costs. While directives and industrial standards are critical for establishing norms for market compliance, they are not always absolutely clear and often misunderstood. Long experience and detailed knowledge are important

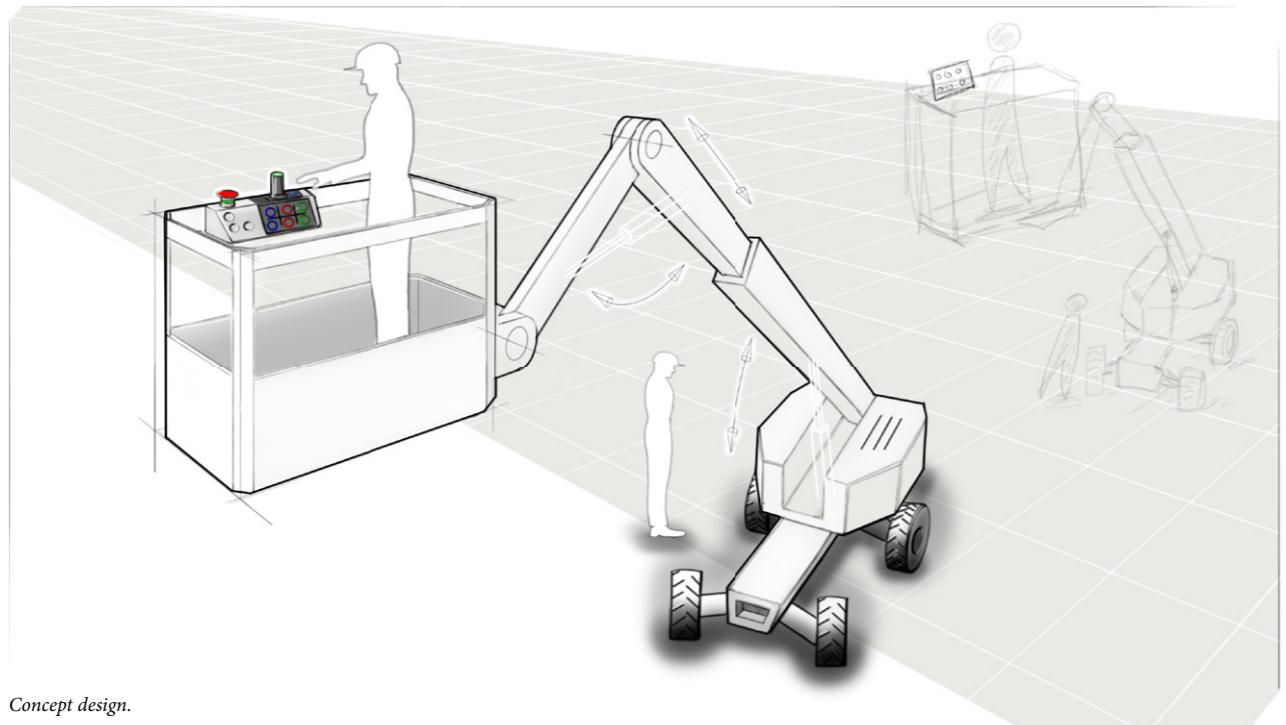
When do you need emergency stop switches? What do they need to be able to do? Such ostensibly simple questions can tie even specialists up in knots. In fact, it's often not even clear what an emergency stop switch actually is in the first place.

Ambiguous terminology, unclear standards and incorrect technical content only further exacerbate the confusion. Online research can be inconclusive – and sometimes results in entirely unresolvable contradictions. Well, it's time to clear things up!

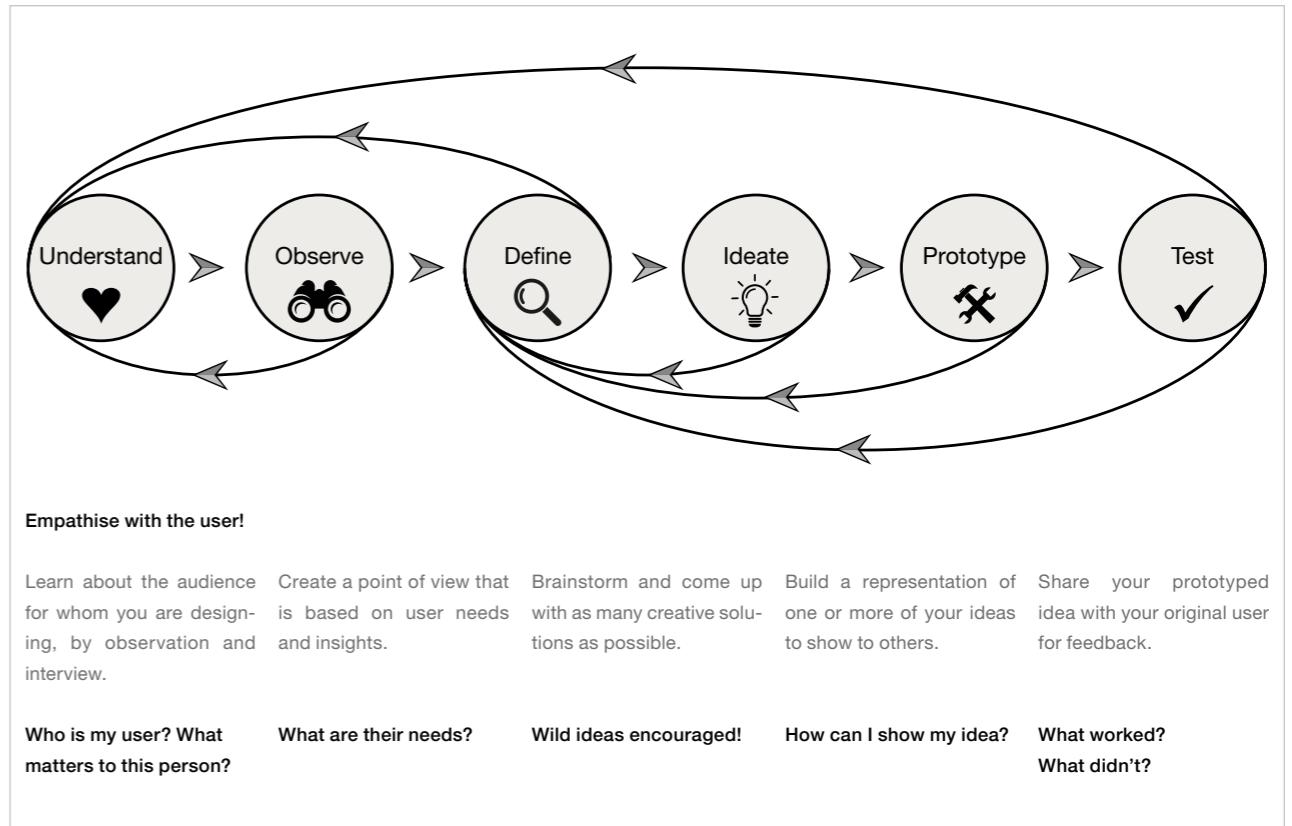
EAO has summarised the most important information on the use of emergency stop switches, their characteristics and the criteria for selecting the correct switch in a detailed technical article.

You find the technical article in the download area at <https://eao.com/downloads/>





Concept design.



Industrial/UX-Design: Better in process and designed products.

[EAO now supports customers in their search for the optimal customised HMIs even better](#) – thanks to the additional competences in industrial and user experience design.

The industrial design process is the basis for good design and superior product performance in terms of function, aesthetics and usability. It includes all the necessary steps and phases that a design project passes through until the desired result is achieved. The design service is not merely the creation of a two- or three-dimensional result. Rather, design decisions are increasingly becoming strategy decisions for a company.

Companies that have difficulty differentiating themselves from their competitors through technology or functionality require distinguishing features. One of the essential criteria can be the design of a product, a service, a brand experience, or even entire processes. Consequently, the design process is a fundamental component of a company's value creation process, and it requires corresponding expertise.

At EAO, we develop ideas, solution approaches and concepts for product functions or products based on market-driven or customer-specific requirements. A key component of industrial design is user-centred design thinking that leads to the creation of hands-on prototypes

and design mock-ups to verify customer benefits. In turn, these lead to more inspired user products that are then tested to shape the ultimate product. The success of a product often depends on its ergonomics and usability.

With this new in-house industrial design service, EAO is closer to customers, and we can respond to the needs of your users and market. This enables us to design and develop from the start, products that provide added value to you.

UX design in an industrial design context

The phrase User eXperience is typically associated with the design of websites, apps, software or IT systems. It also comprises any kind of product interaction, including non-digital, physical use. It describes all aspects of a user's sensual impressions and experience when interacting with a product, service, environment or facility. We can accomplish this through the design thinking process.

Incorporating UX into industrial design helps to design a new product in a way that it brings added value to the end user and simultaneously helps your product stand out from the competition. UX is the expectation, satisfaction and the fulfillment of the usage – before, during and after.

Building in the design thinking process

As shown in the illustration below, design thinking is an innovation approach that fosters creativity and constantly focuses on customer needs and consistently makes the user the centre of attention. And because it's an iterative process, design thinking leads to problem solving and the development of new ideas that ultimately generate new or better products and services.

We have now installed a new, internal process that will enable our salespeople to receive design support in the initial design phase. This can take the form of advice on design topics or the creation of concept sketches as a basis for discussion with the customer. Visualised thoughts are very helpful in capturing and implementing the customer's needs.



Series 84 pushbutton with individualised symbol.

Your customer-specific product variant.

EAO's extensive catalogue covers a wide range of control elements and product variants. But do these products always meet customer needs and requirements in every way? Or do you need something more that cannot be entirely – or indeed at all – met from our catalogue products?

As varied as the applications for EAO HMIs are, there are also many corresponding product versions. In any application scenario, a control element must meet the relevant customer needs – but this is not always possible with a standard product.

Do you need an adjusted cable length, a different front bezel colour, or a customised icon to implement your optimal HMI solution? In order to focus even more strongly on these customer needs, EAO continues to expand its in-house competencies for customer-specific products.

Our team looking after customer-specific, tailored products will be happy to support and advise you on developing the ideal solution for your application. For various series, the additional options cover possibilities such as tai-

lored cable lengths or connectors, individually engraved or laser-marked symbols, and an extended selection of front bezel text or colours.

Contact us for more information regarding customer-specific options, and we will be happy to suggest solutions:

eao.com/contact-us/contact-form



New EAO E-Stop Switch Configurator.

Intuitive use. Fast delivery time.

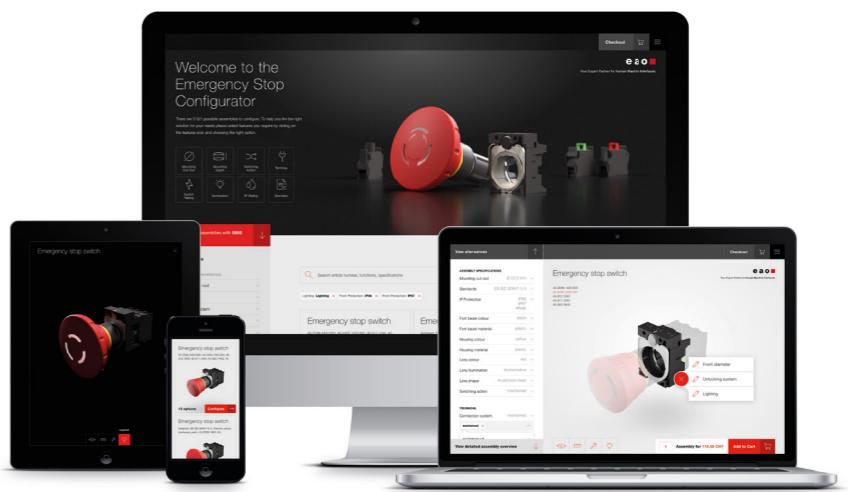
IP-Rating
How resistant should your E-Stop be?
IP66 X IP67 X

View 2 Assemblies with 15 Variants



Configure now your individual E-Stop Switch at hmi.eao.com

- Intuitive use
- More than 2 000 product combinations
- Responsive user interface
- Photorealistic 3D representations
- 3D CAD data and datasheets
- 24 h ordering – fast delivery



EAO Contact.

Your centre of excellence.

Headquarters

EAO Holding AG
 Tannwaldstrasse 88
 CH-4600 Olten
 Telephone +41 62 286 92 00
 info@eao.com

Manufacturing Companies

Switzerland
EAO AG
 Tannwaldstrasse 88
 CH-4600 Olten
 Telephone +41 62 286 91 11
 info@eao.com

EAO Systems AG
 Tannwaldstrasse 88
 CH-4600 Olten
 Telephone +41 62 286 91 11
 sales.esy@eao.com

China
EAO (Guangzhou) Ltd.
 3/F, Block G4, South China
 New Materials Innovation Park
 31 Kefeng Road
 Guangzhou Science City
 CN-Guangzhou, PRC
 Telephone +86 20 3229 0390
 sales.ecn@eao.com

Germany
EAO Automotive GmbH & Co. KG
 Richard-Wagner-Straße 3
 DE-08209 Auerbach/Vogtland
 Telephone +49 3744 8264 0
 sales.esa@eao.com

North America
EAO Corporation
 One Parrott Drive
 Shelton
 US-CT 06484
 Telephone +1 203 951 4600
 sales.eus@eao.com

Sales Companies

China
EAO (Guangzhou) Ltd.
 3/F, Block G4, South China
 New Materials Innovation Park
 31 Kefeng Road
 Guangzhou Science City
 CN-Guangzhou, PRC
 Telephone +86 20 3229 0390
 sales.ecn@eao.com

EAO (Shanghai) Office
 Rm.401, Lihpao Plaza,
 NO.159 Shenwu Road,
 Minhang District,
 CN-Shanghai, 201106.
 PRC
 Telephone +86 21 6095 0717
 sales.ecn@eao.com

Germany, Austria, Czech Republic, Poland, Slovakia
EAO GmbH
 Langenberger Straße 570
 DE-45277 Essen
 Telephone +49 201 8587 0
 sales.ede@eao.com

Japan
EAO Japan Co. Ltd.
 Net 1 Mita Bldg. 3F
 3-1-4 Mita Minato-ku
 JP-Tokyo 108-0073
 Telephone +81 3 5444 5411
 sales.ejp@eao.com

Switzerland
EAO Schweiz AG
 Tannwaldstrasse 86
 CH-4600 Olten
 Telephone +41 62 286 95 00
 sales.ech@eao.com

France
EAO France SAS
 Bâtiment Silex
 15 rue des Cuirassiers
 CS 33821
 FR-69487 Lyon Cedex 03
 Telephone +33 9 74 18 93 41
 sales.efr@eao.com

Hong Kong (Asia Pacific)
EAO (Far East) Ltd.
 Unit A1, 1/F, Block A
 Tin On Industrial Building
 777 Cheung Sha Wan Road
 Lai Chi Kok, Kln
 HK-Hong Kong
 Telephone +852 27 86 91 41
 sales.ehk@eao.com

Netherlands, Belgium
EAO Benelux B.V.
 Kamerlingh Onnesweg 46
 NL-3316 GL Dordrecht
 Telephone +31 78 653 17 00
 sales.enl@eao.com

United Kingdom, Denmark, Finland, Ireland, Norway, Sweden
EAO Ltd.
 Highland House
 Albert Drive
 Burgess Hill
 GB-West Sussex RH15 9TN
 Telephone +44 1444 236 000
 sales.euk@eao.com

Italy
EAO Italia S.r.l.
 Centro Direzionale Summit –
 Palazzo C1
 Via Brescia 26
 IT-20063 Cernusco sul Naviglio (MI)
 Telephone +39 029 247 0722
 sales.eit@eao.com

North America
EAO Corporation
 One Parrott Drive
 Shelton
 US-CT 06484
 Telephone +1 203 951 4600
 sales.eus@eao.com

Editor
intouch –
 the EAO customer magazine

EAO AG
 Tannwaldstrasse 88
 CH-4600 Olten
 Telefon +41 62 286 91 11
 communication@eao.com
 www.eao.com