

*in*touch

Transportation • Edition 29/2022



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Welcome to our railway world.

Editorial

Dear customers and partners

Things have been moving full steam ahead lately – no wonder, when EAO's innovative HMI solutions and products are constantly making train travel more comfortable, relaxed and safe. For that you can thank our passenger interface, multi-tone warning indicators, and new touchless switches – the last of which we released to help with the fight against viruses on public transport. You can read more about these and other EAO innovations in this magazine.

Would you like to see more innovations from EAO? Then visit us at InnoTrans in Berlin from 20 to 23 September 2022, at Stand 271 in Hall 27. Prepare to be fascinated by EAO HMIs in the railway world and discuss the latest HMI technologies with our HMI experts.

And now we wish you happy reading!

David Kramer
Head of Corporate Communications

After four years, the time has finally come – we're looking forward to seeing you again at InnoTrans 2022.

Since the last InnoTrans trade fair in 2018, EAO has got a lot done in the transportation market: we have developed, tested, and brought to market many new innovations for various rolling stock applications for you. Let us tell you more about these highlights now – and we would be delighted to present them to you in person at the InnoTrans trade fair:

Latest-generation passenger comfort
EAO offers a comprehensive selection of HMI solutions for passenger comfort. One example is the railway certified Passenger Interface. This improves the travel experience because it means passengers can charge their phones cable-free – making flat batteries a thing of the past. In addition to the wireless charging system with its additional built-in USB charging socket, EAO will soon be offering a new easy-fit USB charger. This means there will soon be

even more options for passengers to charge their smartphones or other mobile devices. You can come and try them at our stand at InnoTrans, where we will be glad to demonstrate all our charging options to you in more detail.

Clever HMIs for passenger access
EAO components and systems make passenger access significantly faster and safer. And speaking of safety, we've stepped it up another notch with our new products: we now offer the Series 57 door opening pushbutton in a tri-colour version, which makes it possible to use an additional status indica-

tor. This means an immediate indication if there is a door fault. Moreover, flashing LEDs warn that doors are closing or opening. In addition, with the new Series 57 Multi-Tone Warning Indicator, EAO combines two HMI functions that are established in the industry in one complete device, resulting in acoustic and optical warnings brought together in a single product. Likewise, the Series 57 Multi-Legend Display promises a flexible and clearly visible LCD status indicator. It fulfils all public transport requirements in terms of intuitive operation, flexibility, ease of service, and relevant standards. As such it is possible to program up to 18 custom pictograms per display.

The future is already here

What's next from EAO? Series 57 Touchless. Have we piqued your curiosity? We would be glad to demonstrate this innovation to you at our trade fair stand. Further information is available in this magazine.

A virtual journey in the driver's workstation

The effectiveness of an HMI system in a driver's workstation depends crucially on a precise needs analysis and the quality of the design. In close collaboration with producers and operators of rolling stock, EAO develops control elements for driver's workstations that meet customer expectations as well as international standards and norms. At our trade fair

booth, you can also experience innovations such as our Series 04 pushbuttons' halo illumination and the flexible and modular Multi-Legend Alarm Indicator. What's more, you can even take a virtual drive through a snow-covered Swiss winter landscape.

We look forward to meeting you face to face for exciting conversations – at InnoTrans 2022 at stand 271 in hall 27.

Secure your e-ticket today

Further information on trade fair highlights and the opportunity to secure an e-ticket are available at www.eao.com/innotrans-2022



International trade fairs 2022/2023

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



Product innovations in various applications.





Swiss rail routes – with spectacular panoramic views.

Swiss Touch – a look at Switzerland, railway paradise.

Magnificent routes, a dense rail network, and proven high reliability:

these are features that characterise Switzerland, as well as quality EAO HMIs in the railway sector.

75 years ago, in 1947, EAO was founded in the town of Olten on the Swiss Plateau. Applying precision, a spirit of innovation and engineering performance, in 1958 we invented the first illuminated pushbutton. Swiss tradition meets innovation – the revolutionary products soon broke through to the international market. Today, thanks to diverse and reliable HMI products and systems, EAO is a firmly established international figure that sets standards, particularly in the transport sector.

But what makes EAO and Switzerland such a great fit for the transport industry? Just like our company's story, Swiss rail history is also rich in technical mastery and highlights. For many decades Switzerland has been known as "Bahnland" – a railway paradise – due to its impressive train network which is both uniquely dense and highly punctual: a study in 2017 found that 89 per cent of all passengers reached their destination with less than three minutes of delays.

Ground-breaking development

In 1847, the first railway link to be laid inside the country spanned 23 kilometres between the cities of Zurich and Baden – a small first step compared to the larger neighbouring countries, but the Swiss rail story soon got into its stride. By 1860, it was possible to travel right across Switzerland from Lake Constance to Lake Geneva, with branches to Chur and Basel. The foundation for today's "Switzerland, railway paradise". The Swiss transport infrastructure now comprises 5000 kilometres of railway, which are used by over 3000 trains every day. What's more, there are also around 126 kilometres of rack railway routes and 316 kilometres of tram lines (as at 2020).

A masterpiece in railway construction

The Swiss Alps presented a geographical challenge that necessitated new feats of railway engineering, and ultimately resulted in a tunnel through the Alpine massif.

The Gotthard Tunnel and the Gotthard railway changed the landscape of Europe's transport network and secured Switzerland's position as a leading transit country between Northern and

Southern Europe. To this day, around three quarters of all goods crossing the Alps do so by rail – through the world's longest railway tunnel, which is 57.1 kilometres in length.

Central to mobility

The dense Swiss rail network means that trains are central to daily mobility and tourism in Switzerland. Although the car continues to be dominant in terms of passenger transport, 16 per cent of all passenger kilometres are now completed by train. In terms of freight transport, around 37 per cent of transport services are conducted by rail. The 1280 kilometre "Grand Train Tour of Switzerland" takes in 11 great lakes, five UNESCO World Heritage Sites and spectacular panoramic views.

Take a virtual voyage – thanks to EAO

Inspired by these impressive figures and spectacular routes that characterise Switzerland's rail system, EAO is counting on its Swiss Touch. We are delighted to invite you to take a trip through the snowy landscape with the Glacier Express at this year's InnoTrans – steered with reliable products from EAO.



Train ride in front of impressive glacier scenery.



EAO Passenger Interface product range extension.

Smart products for faster charging and further mounting options.

Innovative, intuitive, and now even faster – EAO complements its range of rail-approved charging solutions with these new easy-to-mount and fast-charge products.

The railway-certified Passenger Interface charging system enables passengers to charge a mobile phone and another portable device during their journey. EAO now offers customers additional mounting options for tabletop chargers, 10W versions for faster charging of devices and also new power supply units. This range of charging products can give every passenger access to convenient, reliable phone charging. The Passenger Interface system includes both Qi wireless charging and a USB socket and can be supplied complete with power supplies and cabling. Train operators can also offer additional tailored online services, through their train travel app using the unique iBeacon seat location system*.

10W version – for faster charging

The Passenger Interface with its round tabletop or rectangular multi-coil chargers is now available with an increased charging current up to 2A (10W) for a single device. The users benefit from faster charging if charging one device but have also the option to charge two devices at a time. The increased current of 2A can be shared as 1A for USB charging and 1A for inductive charging. In addition to the previous 5W multi-coil charges the product range now also features a 10W version which can also be built in the seatback holster or the SliderFLEX version.

New Surface Mount Charger Adapter

EAO's extended product range now offers an additional mounting option for tabletop chargers. The new Surface Mount Charger Adapter complements the existing Top Loading Charger Assembly, so that installers can more easily fit the charger to the table. There is no need relamin-

ate the tabletop. The charging unit can be securely fixed through an 80mm hole from the top with double-sided VHB tape, or an optional even more secure horseshoe mounting clamp. Thanks to the attractive non-slip charging surface, the phone stays in place on top of the charging unit.

Expansion of power supplies

EAO also expands its power supply range to cover all popular AC and DC voltage inputs and 5V and 12V outputs with 2 or 4 charging outputs in IP40 sealed enclosures. The 12V output versions are needed for the fast-charging 10W systems. For 5W or 10W charging there are many power supply options – and costs can be reduced by only using the number of outputs that are specifically required at each charging location within the train.

* Subject to additional service charges and software development costs

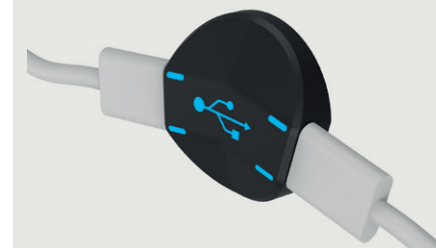
Find further information about EAO charging solutions at <https://eao.com/en/passenger-interface>



Coming soon ...

USB charger for public transport. Convenient, safe and robust.

This convenient, intuitive and hygienic USB charger contributes to the best travel experience and suits perfectly the needs of passengers.



Charging solutions from EAO – for enhanced passenger comfort.



Charging solution in the tabletop.



EAO Transportation

Punctual. Intuitive and reliable.

EAO creates possibilities. Since 1947.

Toilet facilities
Modern EAO
operation panels
for toilet facilities.

Passenger convenience
HMI solutions
for enjoyable journey.

Passenger access
Safety. For passenger
access systems.

Driver's cab
Ergonomic control
elements for driver's cab.



EAO develops and produces high-quality HMI components and systems for the public and private transport sectors. *These enable safe and error-free communication at all times between the vehicle and passengers.*

Whether they are products and solutions for cockpits, doors or other applications: we use our innovativeness, the highest quality standards, and our expertise in developing customised solutions to help provide safe and environmentally friendly mobility.

EAO – Your Expert Partner for Human Machine Interfaces



EAO's latest innovations
Series 57 – Touchless.
Contactless activation for
maximum hygiene.
www.eao.com/57



Series 57 –
Multi-Ton Warning Indicator.
Compact, intuitive and safe.
www.eao.com/57-mtwi



HMIS Multi-Legend Alarm Indicator.
Flexible, bright and reliable.
www.eao.com/mi-panel

www.eao.com



eao

Your Expert Partner for Human Machine Interfaces

Series 57 Multi-Legend Display – it makes sense.

Visible from afar, intuitive and user-friendly: the Multi-Legend Display is the solution for your trains, train doors, and public toilets. With up to 18 pictograms.

Need to go to the toilet while travelling by train? When nature calls, you want to know quickly where to go and whether the toilet's free. Both are clearly communicated with the Multi-Legend Display, thanks to intuitive indicators and easily recognisable symbols. Up to 18 pictograms are possible per display, enabling you to provide comprehensive passenger information – with a clear alarm display in the event of fire, for example.

The Multi-Legend Display features an advanced HMI design, with a 3-inch TFT display, an ambient light sensor and a wide viewing angle. The full-colour display with high contrast images and the adaptive brightness ensure easy readability in any lighting level whilst also optimising the brightness and contributing to a long service life.

Flexible and clearly visible status indicator.



Applications

- Toilets in trains, buses and public spaces
- Passenger alarms and information
- Status indicators for passenger access

An extra advantage: the Multi-Legend Display has a very low installation depth, making it ideal for front-side mounting in sandwich walls.

Further information is available at www.eao.com/57-mld



Intuitive programming kit

Each display symbol, picture or logo needs to be sized to a resolution of 432x432 pixels. You can easily and reliably configure these with the aid of the Multi-Legend Display programming kit.

Download free software: www.eao.com/downloads



Coming Soon – EAO Series 57 Touchless.

Moving into the future hygienically and safely: new EAO door opening pushbuttons with sensor are a true innovation, and a strong response to the threat from viruses.

The pandemic has made it clear that passengers on public transport are very much exposed to viruses. Shared physical touchpoints can accelerate the spread of viruses in public spaces.

Doors that need to be opened with physical contact are a particular crucial point. EAO has a solution which is as hygienic as it is innovative.

The magic word is “touchless”

EAO is adding to its established range of Series 57 door opening pushbuttons with a new version that has an integrated sensor. Intuitively operated, a passenger needs to simply move their hand or finger to activate the contactless button. For users that need or prefer to operate the button via touch, this flexible pushbutton still offers the possibility of haptic actuation.

Advantages

- Contactless activation for maximum hygiene
- On- or off-switching of the touchless actuation as a supplement to manual pushbutton operation
- Ideal for retrofitting
- Two unique, individually illuminated feedback rings and acoustic feedback tone
- Series 57 with touchless function complies with TSI PRM

For further information get in touch with your local EAO partner: www.eao.com



Look and feel of the Series 57, with intuitive sign for touchless actuation.





Easily visible pushbuttons thanks to halo illumination.

Berlin Metro with innovative design for night-time operation.

The halo illumination and the fantastic tactile feedback are impressive:

Stadler Deutschland relies on Series 84 and 04 pushbuttons and the engineering performance of EAO Systems in the cockpit on the Berlin Metro.

Stadler, which has its head office in Bussnang, eastern Switzerland, has been building rolling stock for over 80 years. With several production and engineering sites as well as over 60 service locations, Stadler enables passengers worldwide to travel in maximum comfort. Rail vehicles from Stadler combine performance with reliability and safety.

In addition to shunting and railway locomotives, its product range includes high-speed, intercity, regional and overground trains, as well as underground trains and trams.

Stadler Deutschland is the German subsidiary of Stadler Rail Group and, as a centre of expertise, it develops, builds and maintains overground and city trains in particular, as well as metro vehicles for the German and European market.

HMI power for an innovative cockpit

For the cockpit redesign project for the Berlin Metro, Stadler wanted to offer the customer something new: a metro cockpit in an innovative night design. A design focused on good illumination is particularly useful for applications in the dark – such as, in this case, the metro's tunnels.

As an expert partner for HMI in cockpit applications, EAO met these precise requirements for Stadler. The final design was completed thanks to Series 84 pushbuttons with halo illumination, Series 04 and 14 components, and the EAO Systems engineering service.

For the Berlin Metro project, EAO Systems processed a total of four front plates. These meet all functionalities and needs within night-design cockpits.

Advantages in use

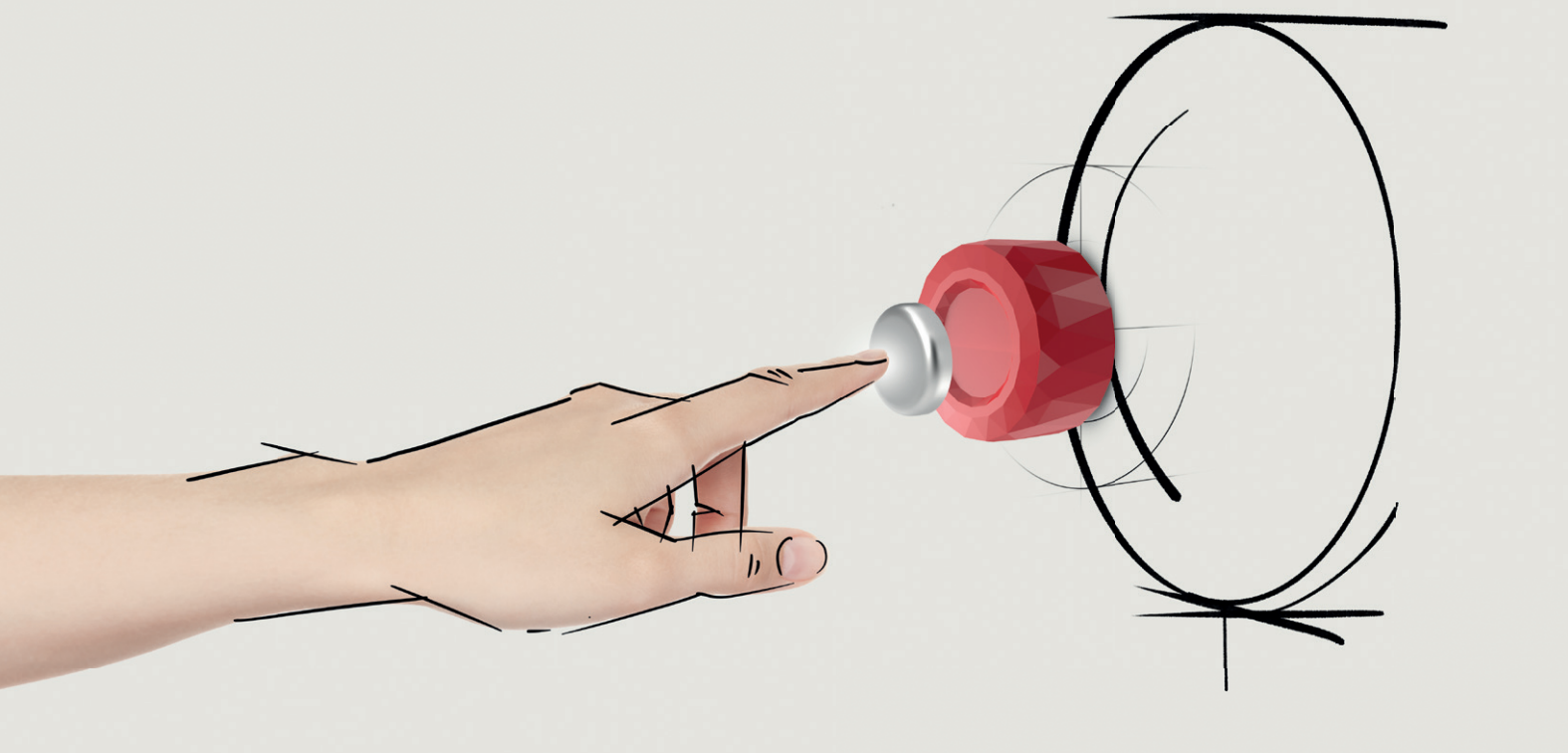
- Easily visible pushbuttons with halo illumination and fantastic tactile feedback on the HMIs
- Simple wiring of the components using printed circuit boards
- Simple housing of the printed circuit board, lamp check and wire break monitoring

We are delighted to have contributed to Stadler's innovative night design – for intuitive and safe use with easily visible HMIs, even in dark tunnels.

Further information about our HMI systems in the transport sector is available at www.eao.com/produkte-loesungen/hmi-systeme



Customer-specific control panel – ideally for Stadler's design for night-time operation.



Visualisations and design mock-ups – for user-centric designs.

New and rewarding – ID and UX design by EAO.

Function, aesthetics and usability: *the industrial and UX design process is the basis for good design and superior product performance. Benefit from EAO's know-how.*

EAO develops ideas, solutions approaches and concepts for product functions and products – always close to the market and individually tailored for your requirements. A key component of this process is the “Design Thinking” creativity method, which leads to the creation of hands-on prototypes and design mock-ups to test your individual benefits in an application. In turn, these tests lead to refined prototypes that are then tested again to shape the ultimate product. The success of good products often depends on their ergonomics and usability.

You can benefit directly from our services

- **Product design**
Design of products and systems that are user-oriented in terms of their function, aesthetics, ergonomics, and user-friendliness.

- **UX design**
User experience considers any user impressions and the user's experience of interacting with a product, service, environment, or device. The purpose of UX design is to create a positive user experience.

- **HMI design and interaction design**
Design of interfaces between people and the physical or digital product. This could be classic controls as well as the design of user interfaces in hardware and software.

With this new in-house industrial design competence, we are even closer to and can respond even better to the needs of your users and your market. This enables us to design and develop products from the start that provide our customers with effective added value.

Advantages for you

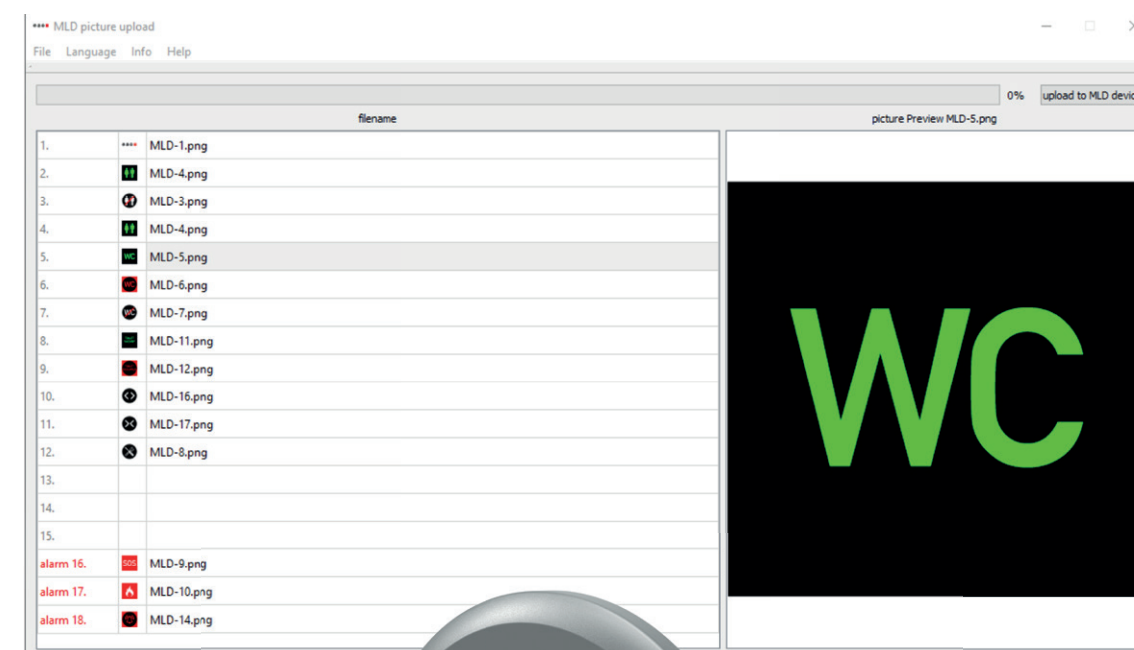
- User-oriented product development and positive user experience
- Value-added features such as attractive design, high quality, and outstanding user-friendliness
- All customer requirements regarding design and function are met
- Achieves striking differentiation from your competitors
- Innovative, efficient design thinking method and quick hands-on prototyping

EAO can now count on a new, internal process that will enable our sales people 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.

Programming kit for the Multi-Legend Display UX and UI design

The programming kit software for the Series 57 Multi-Legend Display is designed to be intuitive and self-explanatory, to the extent that no separate instruction manual is required. Menu-based installation of the cable interface is just as helpful as the user interface design, which is pared down to the bare essentials to support clear, easy-to-understand user guidance.

Further information is available at www.eao.com/id-ux



EAO examples of
ID and UX value added.



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