



Case Study

EAO opens windows.

*Quality in design with EAO Series 04.*

The benefits of a design engineering partnership: How EAO's design expertise helps improve passenger experience.

# EAO reputation as an expert partner for passenger transportation – Custom illumination and attractive design for passenger operated windows.

*EAO's consultative-engineering partnership helped in the selection of proper passenger-operated window controls that met specific design criteria and public use.*

## Company Profile

Customer Profile  
Sotetsu Holdings, Inc.

Market  
Transportation

Application  
Window openers

EAO Series  
Series 04



High-use applications require user-friendliness and highly reliable HMI components.



The EAO Series 04 pushbutton provided an easy, intuitive control and reliability for passengers in the newly redesigned railcars.

## Business Challenge

To celebrate the 100-year anniversary, Sotetsu Holdings has remodeled its train cars. As a part of this new design initiative, and to accommodate the rigorous demands of public use, Sotetsu installed passenger operated windows in the new Yokohama Navy Blue 9000 series of rail cars, named after a famous Japanese port, which is a growing concept in the industry.

The challenge Sotetsu experienced was that the new windows had to be reliable and safe for passenger use. This critical user interface required proven components that will maintain dependability for the typically long-life cycles of railcar operability.

Specifically, customer requirements included an attractive design, custom illumination, user-friendliness and highly reliable components with a sustainable track record of meeting the customer demands of the new train car remodeling project.

Moreover, the windows had to meet the sleek, modern aesthetics of the new railcar design which resulted in limited space for its associated controls. Additionally, the bigger illuminated design of the product provided a user-friendly experience and overall better function for the passenger.

## Solution

The lead designer on the project, Wakao-san, recommended EAO for the provider of controls because of EAO's reputation as an expert partner for Human Machine Interfaces (HMI) within the passenger transportation market. In past projects, Sotetsu was thoroughly impressed with EAO's industry knowledge of application requirements along with the appropriate standards and certifications.

Sotetsu confirmed EAO's ability to supply high quality designs to meet the rigorous demands and performance reliability requirements with their industry leading interface components and systems.

Based on its strong reputation in the rail industry, EAO provided a good range of function, as well as an intuitive product that provided brilliant illumination, intuitive touch for the passenger and an overall innovative, intuitive and reliable products for harsh use in the railway industry.

To ensure the specifications were met for the project, the EAO Series 04 pushbutton was selected because it met the specific

# EAO products provide durability in high-use environments and maintain a contemporary aesthetic to fit customer's specific design requirements.

## Contact

EAO AG  
Tannwaldstrasse 88  
CH-4601 Olten, Switzerland  
Tel. +41 62 286 91 11  
Fax +41 62 296 21 62  
info@eao.com

More information  
www.eao.com



Wakao-san, the lead designer of the new train, selected EAO for the project.

requirements of the customer. The colors red and green were too strong for the customer, however, amber and green were a perfect fit and resonated well with the customer's ideas, providing an easy understanding to push.

EAO's proactive, consultative-engineering partnership helped Sotetsu in the selection process of proper passenger-operated window controls that met the end-user's specific design criteria, the demands of both the market and public use, and challenging redesign of the new railcars. EAO added significant value for Sotetsu by providing a passenger-operated control that was reliable, safe, and uniquely illuminated for easy recognition in both night and day use.

Most important, the design of the new switch was aesthetically pleasing and capable of withstanding high passenger use. In the end, Sotetsu was impressed with EAO's contribution, thus reinforcing their value as an HMI expert partner and their ability to understand the vision to develop an effective result.

## Results

EAO added significant value by

- Installing a HMI solution that was aesthetically pleasing and capable of withstanding high passenger use
- Adding significant value for Sotetsu by providing a passenger-operated control that was reliable and uniquely illuminated for easy recognition in both night and day use
- Reinforcing value as an HMI expert partner and their ability to understand the vision to develop an effective result
- Providing marking and assembly of panel

EAO won this project through our

- Proactive, consultative-engineering partnership
- Innovative approach, exceeding the end-user's specific design criteria
- Integration with the sleek, modern aesthetics of the new railcar design which resulted in limited space for its associated controls

It's important to work with an HMI expert partner who can address all the human factors, technical and commercial considerations of a complex HMI development project.

Furthermore, EAO's HMI Components and Systems undergo rigorous testing to assure required reliability, repeatability, and long service life. EAO is ISO 9001, ISO 14001, IRIS, and ISO / TS 16949 certified for automotive and other industry requirements.

*Innovation by Design: Sotetsu was impressed with EAO's contribution, thus reinforcing their value as an expert HMI partner and their ability to understand the vision to develop an effective result.*



# 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. 403, Block 5#  
CIFI Century Square, Lane 28  
NO. 21, Danba Road  
Putuo District  
CN-Shanghai, PRC  
Telephone +86 21 6095 0717  
sales.ecn@eao.com

**France**  
EAO France SAS  
5, rue Henri François  
FR-77330 Ozoir-la-Ferrière  
Telephone +33 1 64 43 37 37  
sales.efr@eao.com

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

**Italy**  
EAO Italia S.r.l.  
Centro Direzionale Summit –  
Palazzo D1  
Via Brescia 28  
IT-20063 Cernusco sul Naviglio (MI)  
Telephone +39 02 92 471934  
sales.eit@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

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

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

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

**United Kingdom, 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