

EAO – Your Expert Partner for  
**Human Machine Interfaces**



**Marine Applications | Ships**  
**Components and Systems**

[www.eao.com/catalogues](http://www.eao.com/catalogues)

**eao** ■



# Our strengths in marine applications

## The world's most prestigious ship builders value EAO's products

EAO developed its first illuminated pushbutton in 1958. The product became a cornerstone of the company's future and set the standard for an entire industry. Since then EAO has flourished to become a world-leading expert partner for Human Machine Interfaces (HMI). Through experience and innovation, it now manufactures the largest range of high-reliability switch components, and develops complete HMI systems to order.

The world's most prestigious ship builders value the superior design, reliability, quality and durability of EAO products and use them in every type of vessel, from container to cruise ships. They appreciate the wide choice of standard products and consistent global availability.

These strengths have led EAO to the forefront of HMI system design for marine environments. Unique interfaces and control panels are individually designed for a range of specific applications from bridge controls to power distribution systems. EAO aligns equipment to task, to enable users and technologies to work in complete harmony. This results in higher-quality, more functional and easier to use interfaces.



## World class products

EAO products are developed by world class industrial specialists and tested to international standards. They are synonymous with creativity, innovation and excellence – the hallmarks of EAO.

### Standard components

Pushbuttons, indicators, keylock and selector switches, joysticks and membrane switches – page 7.

### HMI systems

Fully-wired control panels with switches, PCBs, CAN, Profi, etc, for fast and reliable integration within larger systems – page 6.

## Specialised experience

EAO aims to make ship building less complex and faster by supplying the most appropriate components and integrated systems.

Customers receive expert advice from product specialists who understand the industry requirements from personal experience gained in the field.

EAO has developed interfaces for:

- Navigation controls
- Bridge communications
- Communication and lighting
- Passenger access
- Security systems
- Rudder, bow or engine controll

## Prestigious customers

EAO serves all type of customers according to their specific needs in the ship building supply chain, including:

- Ship builders
- Ship yard engineering
- Electrical suppliers
- System and component suppliers/distributors
- Panel builders
- Assembly companies
- Service and refurbishment centres



# Applications



From container ships and bulk carriers to luxury cruise ships, EAO is the best choice



## Bridge and helm controls

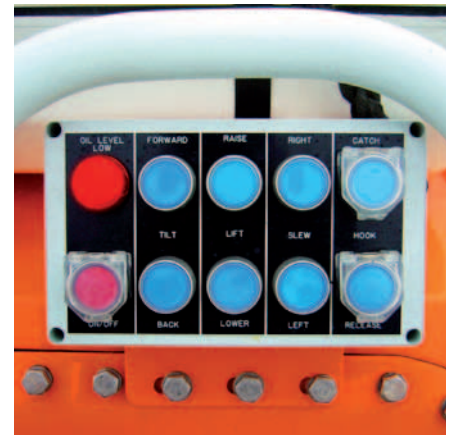
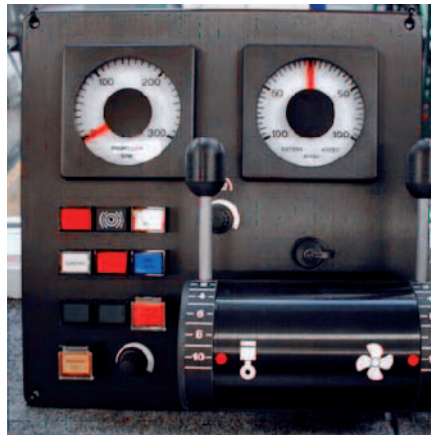
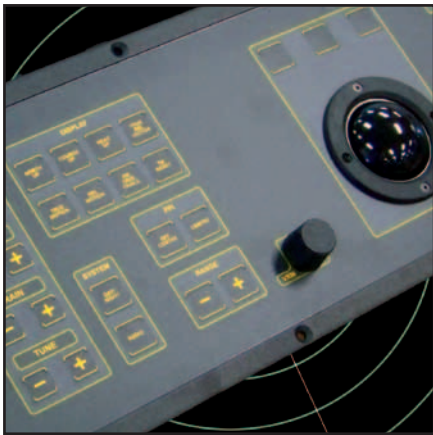
The outstanding quality, design and functionality of EAO switches will improve the ergonomics and usability of bridge and helm controls:

- At-a-glance indication of status. Switch functions are more visible using bright, consistent, pure-colour LEDs for backlighting engraved lenses (engraved to specification).
- Dimmable to cope with changing light conditions.
- Press with confidence: high quality tactile feedback.
- Wide choice of materials and colours to highlight functions and create distinctive controls.

## Power distribution

EAO caters to larger ships with demanding power requirements:

- High reliability switching products for handling low to high ratings.
- Wide range of contact terminals to suit different assembly techniques: solder, plug-in, PCB-mount screw terminals, ribbon cable or push-in terminals (PIT).
- Products meet all important international standards and norms.



## Communication and navigation

Communication systems require clear, intuitive controls which are fast and easy to navigate. EAO offers the world's largest range of switch types, shapes, materials, symbols and connection possibilities for every type of control.

- Many switch types including pushbuttons, indicators, lever switches, buzzers and keylocks available in most EAO series.
- Possibility to mark switch lens with any symbol or legend.
- Create consistent, good looking control panels.

## External cockpit

Control panels exposed to harsh weather conditions need extra protection. EAO switches provide:

- Water resistance up to IP 69K.
- Shock and vibration protection.
- Reliable operation during extreme temperature changes from  $-40$  up to  $+70^{\circ}\text{C}$ .
- At-a-glance indication of status – maintained position shows whether switch is in operation.
- Proven reliability in numerous outdoor cockpits.

## Peripherals

EAO switches are well suited to winches, door access, lighting, alarms and any other type of peripheral/ancillary control:

- Superb illumination makes it easy to see the button in any conditions, day or night.
- Possibility to mark switch lens with any symbol or legend.
- High quality tactile feedback – press with confidence!
- The right product to suit every environment and application.
- Water resistance up to IP 69K.



# Customised control systems



EAO systems make ship building faster and less complex



## Concept to design

With EAO as your knowledgeable partner, you will gain design capacity and global expertise including:

- HMI system design and layout that is functional and intuitive.
- Ability to match overall system appearance: colour, graphics, etc.
- Knowledge of all safety, ergonomic, industry, and international standards.
- Expert toolmakers, engineers, and designers.
- Cost-effective, quality components.

As a worldwide manufacturer of high quality HMI components, EAO's expertise in prototyping, tooling, plastics molding, plating, electrical design, automation, and precision-parts assembly is unsurpassed.

## Quality assurance and testing

EAO has a dynamic Total Quality Management system linked to all aspects of our business and is certified and managed to ISO 9001 and ISO 14001.

Our products and systems undergo rigorous testing to assure reliability, repeatability, and a predictable long service life.

Testing capabilities include:

- Environmental test chambers.
- Ingress protection (IP) testing.
- In-circuit test (ICT), optical and X-ray analyses.
- Finite element analysis.

Adherence to international standards and extensive product testing makes EAO a trusted, knowledgeable and valued partner in the planning, design, and manufacturing of your HMI control system project.

02



04



14



18



19



22



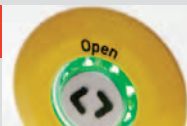
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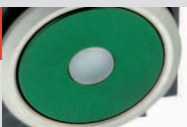
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61



71



84



R



# Products

Series	02	04	14	18	19	22	44	51	56	61	71	84	R
<b>Range</b>													
Pushbutton	■	■	■	■	■	■	■	■	■	■	■	■	■
Indicator	■	■	■	■	■	■	■	■	■	■	■	■	■
Selector Switch		■	■				■	■		■	■		
Key Switch	■	■	■			■	■	■		■	■		
E-Stop		■					■			■		■	
Buzzer	■		■						■				
Level switch		■											
Mushroom pushbutton	■					■							
<b>Mounting</b>													
Flush	■	■	■	■		■	■	■	■	■	■	■	■
Raised		■	■	■	■		■	■	■	■			
<b>Mounting hole</b>													
8 mm Ø				■	■								
16 mm Ø				■				■		■			■
19.2 mm Ø													■
22.5 mm Ø		■	■				■	■		■	■	■	
30.5 mm Ø		■	■				■						
43 mm Ø									■				
square/rectangular	■	■		■		■		■		■	■		
<b>Switch rating max.</b>													
42 VAC/100 mA				■	■								■
250 VAC/3 A											■		
250 VAC/5 A			■					■		■			■
400 VAC/10 A	■					■							
500 VAC/10 A		■											
660 VAC/10 A							■						
137 VDC/VAC/200 mA									■				
<b>Terminals</b>													
Solder			■	■	■			■					■
Solder/Plug-in			■		■			■		■		■	
Plug-in	■	■				■							
Screw	■	■				■	■			■			■
Ribbon cable												■	
PCB			■					■			■	■	
PCB-Terminal available			■	■	■			■		■			
Push-in terminal		■											
Cable									■			■	
<b>Front Protection degree</b>													
IP 40	■		■	■	■				■				
IP 65		■				■	■	■	■	■	■	■	■
IP 67		■	■						■			■	
IP 68 (with protective cap)		■	■				■	■		■	■	■	
IP 69K									■				
<b>Suitable Applications</b>													
Indoor Applications	■	■	■	■	■	■	■	■	■	■	■	■	■
Outdoor Applications		■	■			■	■	■	■	■	■	■	■

For more information on these products and many more, including a fantastic range of keypads, consult the EAO catalogue or contact your local sales office (see overleaf).

# EAO – Your Expert Partner for Human Machine Interfaces

## ■ Headquarters:

**EAO AG**  
Tannwaldstrasse 88  
4601 Olten, Switzerland  
www.eao.com

## ■ Subsidiaries:

**Austria**  
Phone +49 201 85 87 0  
Fax +49 201 85 87 210  
sales.ede@eao.com

**Belgium**  
Phone +32 3 777 82 36  
Fax +32 3 777 84 19  
sales.ebl@eao.com

**China**  
Phone +852 27 86 91 41  
Fax +852 27 86 95 61  
sales.ehk@eao.com

**France**  
Phone +33 1 64 43 37 37  
Fax +33 1 64 43 37 49  
sales.esa@eao.com

**Germany**  
Phone +49 201 85 87 0  
Fax +49 201 85 87 210  
sales.ede@eao.com

**Italy**  
Phone +39 035 481 0189  
Fax +39 035 481 3786  
sales.eit@eao.com

**Japan**  
Phone +81 3 5444 5411  
Fax +81 3 5444 0345  
sales.esj@eao.com

**Netherlands**  
Phone +31 78 653 17 00  
Fax +31 78 653 17 99  
sales.enl@eao.com

**Sweden**  
Phone +46 8 683 86 60  
Fax +46 8 724 29 12  
sales.esw@eao.com

**Switzerland**  
Phone +41 62 388 95 00  
Fax +41 62 388 95 55  
sales.ech@eao.com

**United Kingdom**  
Phone +44 1444 236 000  
Fax +44 1444 236 641  
sales.euk@eao.com

**USA**  
Phone +1 203 877 4577  
Fax +1 203 877 3694  
sales.eus@eao.com

**Other Countries**  
Phone +41 62 286 92 10  
Fax +41 62 296 21 62