

Mooring: advanced course

The anchoring of larger ships is often managed not with bollards, but with electromechanical mooring systems. The switchgear used to control these systems must be able to withstand extreme ambient conditions.

“Catch!”: Today it is no longer this simple to tie up a ship on land. The anchor ropes on larger ships are often not wound around bollards, but around moving anchor hooks which employ hydraulic cylinders to advance and lock electromechanically. The dock workers bring in the mooring rope with the help of an electric winch mounted on the anchor hook. At the end of the rope the actual anchor cable is tied, which is then looped around the detachable hook. The benefits of this system include simplified handling and increased safety: in an emergency, the anchor cable can quickly be released. The same technique is also used when loading goods from one ship to another.

Foot controls “Extreme”

The controls used to actuate these “mooring systems” (as they are called internationally) have to fulfil particularly high standards. In addition to considerable mechanical wear and tear, the switching devices are also exposed to high levels of corrosion and salt water. Highly effective sealing is necessary so that no moisture can penetrate inside the housing. The switchgear specialist steute, or more particularly its business unit “Extreme”, has developed a dedicated offshore range

especially for applications offshore, on ships and in ports. Features include a salt water-resistant variant, a robust design, the appropriate approvals and – if required – an Ex variant. The range also includes foot controls.



Anti-corrosive and robust: the offshore version of the GFSI Extreme foot control from switchgear manufacturer steute

Onshore and offshore

One of the leading European manufacturers of mooring systems uses not one, but two of these very robust controls per system. Via the first foot switch the user starts or stops the winch to wind in the mooring rope. The second foot switch controls the anchor hook, to which the anchor cable is attached, opening it when a ship is ready to depart

or in an emergency, for example to quickly release the anchor cable in a storm. Here the offshore variant of the GFSI Extreme foot control is used. This variant has an extraordinarily robust metal housing. A protective guard prevents unintended actuation, while different switching inserts facilitate adaptation to individual application requirements. The housing is made of salt water-resistant aluminium with an additional high-quality surface coating.

The future is wireless

The use of highly robust foot controls tried and tested in extreme environments permits the absolutely reliable operation of anchor hooks. Alternatively, cable-free foot controls can be used with wireless technology. This comparatively new technology provides greater flexibility when positioning the controls, and it also precludes the risk of power and signal cables becoming damaged in the rough conditions usual in ports.

Foot controls for mooring systems are only one of many examples of uses for switchgear from the steute Extreme range. Special lift limit switches from this range, for example, can be used to

monitor the hook position on ship cranes (lift limit stop); steute developed one of its new position switches in close collaboration with a manufacturer of ship valves. It does not work using the conventional "on/off" technology, but instead transmits an analogue signal that corresponds to the position of the actuator or the plunger. The position is recorded by an integrated Hall sensor which supplies the output signal in the relevant format depending on the variant.

Offshore "Extreme"

The latest addition to the steute "Extreme" and "offshore" ranges is the Ex 97 series. Its focus is use in gas and dust explosive zones, as well as suitability for low temperatures down to -60 °C. The low temperatures in particular require detailed solutions, and care must be taken with the design. With its set of characteristics, the Ex 97 series is suited to monitoring the position of flaps, valves, lids and other moving components onshore and offshore. Other applications are handling systems on oil rigs and position monitoring on crane booms. Safety-related applications are also possible.

Author:



Rainer Lumme
Product manager Extreme
steute Schaltgeräte

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