

**Make ship automation more reliable and efficient with the remote I/O system u-remote****Weidmüller u-remote meets the requirements of the largest classification societies for use in maritime and offshore applications**

Modern ship technology is inconceivable without automation systems. In many cases, the requirements are similar to those in the industry: recording, evaluating and monitoring a constantly growing number of signals; then converting the results into control commands within a defined time. On a ship, automation faces additional, very specific requirements: Space is usually even more limited than on land. In addition, the cables must be routed through countless steel bulkheads, which in an emergency must not only protect against smoke and fire, but also against water penetration. Any intervention in the cabling here is time-consuming and costly. The flexibility of a system must therefore come from the system itself - a classic task for fully integrated automation systems such as Weidmüller u-remote. Couplers for all common network protocols such as Profibus, Profinet, EtherCat, Modbus TCP, EtherNet/IP, DeviceNet, CANopen, CC-Link, IE TSN and POWERLINK facilitate its integration into existing systems.

Up to 64 I/O modules can be connected to one coupler, such as the UR20-FBC-IEC61162-450. A web server integrated in the fieldbus coupler allows easy and fast checking of the system status or analysis of diagnostic messages - on-site via the integrated service interface or remotely via network access. Input states can also be simulated and outputs forced via the web server. Features that speed up the commissioning of systems and reduce the risk of installation errors to a minimum. u-remote does not require any special software for this, only a standard browser. In addition to facilitating section-by-section commissioning, this also speeds up service in the event of an unplanned shutdown or scheduled maintenance work. In addition, status displays on the couplers and the individual modules provide information about the operating status and possible malfunctions directly on site. Here, the components from u-remote score points with a temperature range from -20 °C to +60 °C. They can withstand humidity

of up to 95 %, vibrations of up to 4 g and high-energy electromagnetic fields without influencing other devices by emitting too much radiation.

### **Automation solutions suitable for the high seas**

Industrial operating conditions are already tough on land; they are even tougher at sea. At the same time, the demands on availability are even higher. The failure of a system on land costs money; at sea it may cost lives. Moreover, spare parts are not as easy to obtain as on land. This is why the industry has set its own standards and regulations. u-remote already has eleven different maritime approvals such as the international classification societies DNV/GL (formerly Det Norske Veritas and Germanischer Lloyd), Bureau Veritas (BV), Lloyds Register (LR), Registro Italiano Navale (RINA) and American Bureau of Shipping (ABS) certify that the robust components can be used in this demanding environment. It covers almost all areas on a ship, including the ship's bridge, for which particularly high requirements apply. After all, the technology must not affect such sensitive devices as a compass.

Incidentally, users on land also benefit from this. Industries that have to take extreme environmental conditions into account, e.g. crane manufacturers, also like to rely on the aforementioned certificates because they ensure the highest quality.

### **From Westphalia to the Mississippi**

The applications for ocean-going technology are therefore far more diverse than one might think, be it in highly automated cargo ships, be it in wind farms. But sometimes automation also helps to make quite traditional technologies powerful enough for the 21st century. One example are paddle steamers, which were an important means of transportation, in particular on large rivers in the southern United States.

The American Duchess is continuing this tradition into the 21st century. It was constructed in 1995 and then purchased 20 years later by the American Queen Steamboat Company, which organises classic cruises on the Mississippi, Ohio, Tennessee, Cumberland, and Illinois rivers.

Before sailing down the Mississippi, the ship, which is around 100 m long, had to be completely renovated. Since the suites, halls, and overall infrastructure required top-class climate control, a high-efficiency air conditioning system automated with Weidmüller u-remote was installed.

Gooiland Elektro from Hilversum took care of that. The Dutch company was founded in 1980 and specialises in HVAC solutions (Heating, Ventilation and Air-Conditioning) for commercial and private shipping. In addition, there are orders from the oil, gas and wind energy sectors. Gooiland Elektro implements automation solutions of all kinds, but air conditioning is the main focus. The Dutch use a wide range of u-remote components for this.

### **Perfect air conditioning for an unforgettable travel experience**

For the American Duchess, the client wanted a control system that was both reliable and economical. A SPOF (single point of failure / component of a technical system whose failure results in the failure of the entire system) was not acceptable. The system should also be clearly structured and testable and parameterisable without special software. This was achieved through u-remote's web servers. The entire system has a redundant structure with two independent controllers and an Ethernet ring. Nevertheless, clever multiple use means that there are no more components than necessary. A total of 14 u-remote fieldbus couplers are installed, which integrate temperature and pressure sensors, alarm inputs and the corresponding digital, analogue and control outputs into the system. In addition, there are controls for the exhaust fans. Thus, passengers and crew enjoy the atmosphere of a traditional paddle steamer with the technical comfort of the very latest design.

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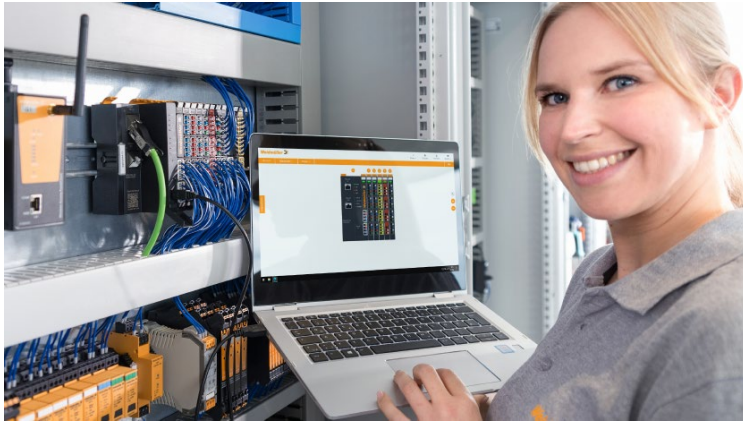


Image caption: Weidmüller products have not only undergone stringent internal testing procedures, but are also certified by various classification societies.



Image caption: A web server integrated in the fieldbus coupler allows easy and quick checking of the system status.

**Weidmüller – your partner in industrial connectivity.**

The Weidmüller Group has production facilities, marketing companies and representative offices in more than 80 countries. With our customers, we shape the digital transformation – with products, solutions and services for Smart Industrial Connectivity and the Industrial Internet of Things. In the fiscal year of 2021, Weidmüller reached sales of 960 million euros with around 5,300 employees.

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