# Royal Huisman Luxury Yachts

## Clustering enables integration of facilities and control on 58-meter showcase yacht



The luxurious exterior and interiors of Royal Huisman's Etherial

### The Challenge

Royal Huisman needed a to deliver high levels of energy efficiency across all power hungry facilities, with high levels of data and control shared across all sections of the vessel. The system also required a full redundancy backup.

### The Solution

An automated control system utilizing CitectSCADA, which includes advanced clustering technology to help safeguard system reliability and increase security, with the added bonus of full redundancy.

### The Benefits

The clustering features of the automation solution has enabled Royal Huisman to:

- Combine both controls and facilities into a single system.
- Present nautical data in a more intuitive way to enable passengers to assimilate it more easily.
- Reduce the high costs associated with multiple redundancies in hardware, while ensuring server availability.
- Reduce the costs of control rooms and manpower without compromising on close-to-process system functionality.

With a history of excellence in boat building that stretches back to 1884, the Royal Huisman Shipyard of the Netherlands is able to integrate the best in traditional craftsmanship with the latest in technological advances. Nowhere is this more evident than in the company's luxury yacht, the 58-meter (119 ft) Ethereal.

Ethereal is not only beautiful by design, the world-cruising ketch also breaks new ground in areas of onboard information presentation by adopting touch screen terminals that use the same operating methods (i.e. sliders and icons) as the latest innovations used in terrestrial communication.

The touch screens are situated at points all over the vessel - in cabins, dining rooms, lounges, sun deck, steering position - providing information on everything from vessel position, sea depth, wind direction, weather forecast, outside temperatures and much more.

### The Challenge

From its design inception for Ethereal, Royal Huisman realized that data display needed to be transposed from the traditional nautical format to a more intuitive simplified view. This transition however was extremely data intensive.

Moreover, the fact that Ethereal is a state-of-the-art vessel requiring the close monitoring and control of a large number of facilities, meant that the I/O point count for any conventional SCADA system would be astronomical.

Facilities and equipment being monitored include:
* Fridges and freezers
* Lighting, generators, heating and air conditioning
* Engines, generators and hydraulic systems
* Sail handling facilities and bilges
* Fire alarms and surveillance systems

## CitectSCADA

## Case Study

# Clustering feature cuts I/O points by factor of 10

This could have necessitated splitting the system into definite sections. This approach, however, would have been very unwieldy, expensive and difficult to integrate, especially considering that the whole system has to be supported by dual redundancy.

## The Solution

The installation of CitectSCADA, meant that rather than separate system monitoring, Ethereal could utilize clustering effectively to integrate control, facilities, and data dissemination throughout the entire vessel.

Supplied by a valued local integration partner, the total integrated solution comprises 26 Schneider Electric PLCs, two servers and 30 display clients. EIB drivers are utilised for disseminating data and communicating throughout all levels of the vessel. The system continuously monitors a number of variables from sensors throughout the yacht and presents simplified, easy-to-read information to crew and passengers in all areas of the yacht.

The CitectSCADA system stores over 100 historical trends and monitors in excess of 1400 alarms, to ensure that if a problem arises, the crew are informed instantly. Its built-in redundancy is crucial, ensuring that the system remains operational even under hostile sailing conditions.

Complementing the back-up security provided by the CitecSCADA package is another operating safeguard: high levels of system transparency. Employing this feature, an authorized Royal Huisman service manager can remotely modify the CitectSCADA database or update a PLC program, by using the onboard communications network and SatCom interfaces, irrespective of the position of the yacht.

"We originally chose CitectSCADA, back in the late 1990's, for its flexibility and redundancy; and these features are still at the core of our new development with Ethereal, helping us to achieve efficiencies and make the yacht extremely user friendly," said Jan Bokxem, Design Manager at Royal Huisman.

"With a project like Ethereal you have to process a lot of data, and decide which data is suitable for each onboard group, for example: alarms, communications, and entertainment. We had to design a system that would not limit this flexibility; and the easiest way we could achieve this was by integrating all data requirements into one network. CitectSCADA provided the flexibility to enable us to achieve this objective."

## The Benefits

"The clustering feature in the CitectSCADA installation has been instrumental in enabling us to achieve our objectives with Ethereal," says Sjoerd Schrichte, Manager of the Systems Integration Department, Royal Huisman.

"The value of the clustering feature can be judged from the fact that, without it, we would have been looking at a complete system with 15,000 points; however with the new control system clustering, our facilities system is just 1500 points," according to Schrichte.

CitectSCADA is part of a total automation solution that achieves a "less is more" strategy for Royal Huisman. This is achieved by reducing costs and delivering high levels of energy efficiency across all power hungry and volatile facilities, distributing data across all sections of the state-of-the-art vessel.

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CitectSCADA