

All-electric Rotork valve control package used for offshore wind farm

Industry: Wind Power
Client: DanTysk, Germany
Product: CVA, IQ, Pakscan

Summary

Rotork has supplied an all-electric valve actuation package encompassing isolating, regulating and modulating actuators with 2-wire digital control for Germany's DanTysk offshore wind farm in the North Sea.

Overview

The DanTysk offshore wind farm platform is situated 70 km west of the German Island of Sylt at the border to Denmark. It consists of 80 turbines with a capacity of up to 3.6 MW each. It was one of the first large offshore wind farms to be built within the North Sea.

The site runs with the help of 100 Rotork IQ part-turn electric actuators, which control butterfly valves on the transformer platform. The contract included the fitting of the actuators to the valves, which was performed prior to their delivery at a specialist actuator workshop facility attached to Rotork's workshop in The Netherlands, where the order was won.

Challenge

The wind farm covers an area of 70 m² and generates 288 MW of renewable energy for up to 400,000 households. Rotork actuators play a vital role in ensuring that this operation continues to run smoothly.

Approximately half the actuators are IQT Pro intelligent isolating and regulating duty units, the balance comprising CVA fully modulating control valve actuators. Both designs share advanced and user friendly nonintrusive programming and commissioning technologies, combined with comprehensive integral data logging, diagnostic and asset management capabilities. Rugged, double-sealed IP68 watertight and explosionproof enclosures enhance long-term reliability in the harshest of environments, as can often be encountered in offshore applications.

Rotork CVA electric actuators deliver continuous, repeatable modulating control with a programmable fail- to-position option. Resolution, repeatability and hysteresis performance is quoted at less than 0.1% of full scale, offering suitability for the most demanding control valve applications.



Solution

Digital 2-wire control is provided by Rotork's proprietary Pakscan™ P3 system, the third generation of a marketleading product, capable of monitoring and controlling up to 240 field units without repeaters on a single highway with a length of up to 20 km. Designed specifically for the valve actuation environment, Pakscan incorporates secure field communications with inbuilt network redundancy to maintain control even in the event of equipment or cable failure. On the DanTysk project the Pakscan network Master Station links the actuators to a

distributed control system and to a remote, centralised monitoring centre situated at Esbjerg in Denmark.

Further Information

The DanTysk offshore wind farm was a joint venture between Vattenfall and Stadtwerke München (SWM). Since the completion of the €1 billion project at the beginning of 2014, Rotork's involvement follows a similar North Sea offshore wind farm contract in 2011 when IQT Pro actuators were specified for the Borwin Alpha transformer platform, serving the BARD Offshore 1 wind farm.

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PUB000-236-00 Issue 02/20



Above: The DanTysk offshore wind farm substation being prepared for its final destination off the island of Sylt in the North Sea.