BRIGHT ideas

Liam Jones explains how advanced actuators are proving popular in the rapidly growing global solar power sector

The new Rotork IQ3 multi-turn electric actuators will increase the efficiency of two solar power plants in Spain

With a growing global call for the reduction of non-renewable energy use, solar power is pushing its way further and further to the forefront of public consciousness as a viable way of powering both homes and businesses.

As of 2011 the technology was producing less than one tenth of energy around the world, but there is increasing demand as consumers begin to recognise its long-term benefits.

Renewable energy is the fastest-growing sector in the power industry and is expected to continue to thrive around the world as developing countries begin seeking out carbon-neutral energy alternatives.

Rotork's specialist power team can help with the generation of energy sources including coal and natural gas, and the company also assists plant designers and operators with the creation of solar, biomass or geothermal power. As well as keeping pace with new energy solutions to keep power running at facilities such as wind farms, hydroelectric and biomass plants, Rotork has an extensive range of products dedicated to supporting concentrated solar power (CSP) plants.

Carried out on a large scale, this is a technique used to generate heat that in turn produces electricity. The process involves lengthy troughs of parabolic mirrors that direct sunlight onto a pipe of oil running through the centre, causing it to heat up pipes filled with heat transfer fluid (HTF), which in turn boils water.

The actuators provide increased efficiency at solar plants

REAL-WORLD CASE STUDIES

One project using this solar power solution is the giant Noor I CSP Farm in Morocco, the first phase of a Moroccan Agency for Solar Energy scheme to provide renewable energy for millions of people.

More than 500 Rotork electric and pneumatic valve actuators have been installed at the now completed site, mainly to operate isolating and regulating valves on the HTF pipework.

Earlier in 2018 Rotork's Spanish office worked with the owner of two solar power plants in the country to install hundreds of IQ3 actuators on each site.

The multi-turn electric actuators were fitted with Rotork Pakscan two-wire digital control systems to provide increased efficiency at both plants.

Each master station is capable of effectively running a bus loop of up to 20km in length with no drop off in communication performance, making it the ideal solution for an area as spacious as a power plant.

More than 300 actuators were also fitted to the outlet valves on the solar field loops of HTF pipes that are used to carry heat transfer oil between the solar concentrating parabolic mirrors, the steam plant and power generation circuits.

These actuators allow individual HTF pipes to be automatically isolated when essential maintenance is required, thus also improving safety. ●

Liam Jones is with Rotork.
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