

# INNOVATIVE ELECTRODE LEVEL SENSOR CUT CARBON EMISSIONS BY 70%

**A technical innovation from pump manufacturer Tsurumi has environmental benefits that place the company at the forefront of the EU's ambitious energy saving plans. The company calculated that a 2.2kW pump equipped with this sensor would only cost 889 euro per year to run and generate 1,424 kg of CO<sub>2</sub>. In comparison, the same pump without a level sensor would cost 3.211 euro per year to run and generate 5.138 kg of CO<sub>2</sub>.**

Europe is constantly responding to the demands of climate change with increasingly rigorous environmental legislation. In spite of this, the EU continues to waste at least 20% of its energy due to inefficiency. A European Commission report, published in October 2006 - 'Action Plan for Energy Efficiency: Realising the Potential' - sets out an action plan for how the EU can recoup the wasted 20% of energy by 2020, and proposes a series of ambitious steps that will see energy savings amount to double what has already been pledged under the Kyoto Protocol. The report targets energy efficiency in the building sector as a top priority in terms of both reducing energy use and lowering carbon emissions. To help achieve the goals set out in the Action Plan, the EU expects that equipment manufacturers will have a key role to play in terms of developing more energy-efficient technologies and products.

## Popular but costly

Now pump manufacturer Tsurumi has developed an innovative electrode level sensor that combines energy savings, cost savings and a reduction in the amount of CO<sub>2</sub> emitted into the atmosphere. Initially the sensors have been incorporated into the manufacturer's range of contractor pumps, used for general dewatering applications.

Daniel Weippert, Managing Director of Tsurumi (Europe) GmbH explains: "On construction sites it is neither practical, nor economically viable to have pumps monitored round the clock. The dry-running feature of our pumps is popular with contractors as it avoids damaging the pump or the need for higher staffing costs." However,

there are disadvantages to allowing any pump to operate non-stop in this way – the pump will be subjected to greater wear and tear leading to more frequent maintenance; energy consumption will be higher leading to greater energy bills for contractors; and more CO<sub>2</sub> is blown into the atmosphere. The electrode level sensor gets around this problem by responding to the presence of water: as the water level rises it makes contact with the electrode, which switches on the pump; when the water level drops away the automatic timer switch will stop the pump after just one minute.

## In figures

Calculations on the performance of the electrode level sensor in the pumps have highlighted impressive potential savings that can be made compared to pumps that don't have the sensor. Based on data from a typical job site<sup>1</sup>, Tsurumi have calculated that a 2.2kW pump would only cost 889 euro per year to run and generate 1,424 kg of CO<sub>2</sub>. In comparison, the same pump without a level sensor would cost 3.211 euro per year to run and generate 5.138 kg of CO<sub>2</sub>. For calculation purposes the typical construction site was calculated to be 5000m<sup>2</sup>, with a pit depth of 10m and a volume of pumped water at 20l/day per m<sup>2</sup>. Electricity costs are based on euro 0.25/kWh.

The sensor also reduces both costs and carbon emissions by over 70%. "We are proud that we have taken the lead in eco-friendly design," says Daniel Weippert. "European equipment manufacturers have a responsibility to help reduce energy consumption and we are pleased that this latest innovation benefits both our customers and the environment."



For the comparison, Tsurumi refers to the CO<sub>2</sub> output based on the International Institute for Energy Conservation (IIEC) figure of 0.4kg CO<sub>2</sub> per kWh as the European average. However, this figure will vary by EU member state depending on how electricity is generated in that country (proportion from coal, oil, gas, nuclear or renewable energies): the potential reduction in emissions will be higher wherever the national figure is above average for Europe.

## Additional benefits

In addition to the obvious cost and environmental benefits, the electrode level sensor makes these pumps ideal for installation in confined spaces. The design for the sensor was originally conceived in response to customer demands for a slim-line pump that would still be responsive to water levels. Additionally, the electrodes cannot get blocked or tangled, unlike float switches, and offer a more precise detection of water level.

The Tsurumi company is also represented in Belgium. <<



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