



Application Case Study

Cooling Towers

The Application

Cooling towers are used in any industrial plant where water is used as a cooling media. They are essential to remove heat from critical processes and protect valuable and dangerous equipment. Power plants take this one step further and use them to also cool and recondense steam into water for recycling into the plant. In these cases, the steam condensate and the water used for cooling are kept separate.

A steam-fired power plant had another brand of ultrasonic transmitter monitoring their cooling towers. The cooling water gives off a great deal of steam and occasionally has foam on it due to additives used to prohibit corrosion. Between the combination of steam, condensate on the sensor and foam on the liquid, the old ultrasonic transmitters rarely worked, causing a potentially dangerous situation. If the cooling water dropped too low, then valuable equipment would be at risk and “bad things” could happen in the boiler if the steam was not properly recondensed.



The Solution

The echOsonix transmitter was proposed to solve this problem. A U73/RCP, 20 kHz unit was recommended for this application. These cooling towers are 45 feet (13.7m) tall. The factory default parameters are designed to provide optimum performance in applications like this. The sensor is frequently hidden from sight in the steam, and condensate continually runs off of it. The liquid can have up to 18” (0.5m) of foam on top of it – equal in consistency to soap suds.

The U73/RCP is well suited for difficult applications like this. By using lower frequency sound, it can penetrate through steam and foam better than the competitor's unit. The adaptive gain feature on the echOsonix allows it to adapt to the amounts of steam, condensate and foam at all times. No other ultrasonic transmitter on the market is capable of adapting itself to these conditions.

The Results

We installed the U73/RCP and set it for liquid service with the standard factory defaults. The unit performed perfectly from the beginning, but then so had the competition. However, the competitor units usually failed after about a week. After one month of operation, the U73/RCP had not given any false indications or failed due to application conditions. The customer placed them on their remaining two cooling towers, and all three are now performing flawlessly.

Ordering Information

Electronics Model **U73-FL7J-00-30**
Remote 110VAC/24VDC Line-powered transmitter
4 x SPDT Relays adjustable over entire range
NEMA 4X Remote electronics housing

Sensor Model **RCP-3A-00-100**
30 kHz Transducer for remote unit
3” NPT Threaded connection
100-foot cable from transducer to electronics housing