



## CONDENSATION AND ELECTRONICS

We have all experienced a foggy morning when the dew covers the earth like a glistening blanket. This natural phenomenon occurs when warm, humid daytime air yields to cooler night time temperatures. The temperature at which water vapor in the air condenses into a liquid is called the dew point. When the dew point is reached, the cooler air cannot hold the moisture it carries, and releases it through condensation. Since water is heavier than air, it settles to the ground, and forms on any surface that is cooler than the dew point. In nature, condensation can be a dramatic event, but for electronics, it is a contributing factor to premature system failure.

Components housed in electrical enclosures are especially at risk to the dangers of condensation. During normal operation, the ambient temperature combined with the heat produced from working components will typically keep the component temperatures above the dew point. (In many cases, this combination will create the need for cooling during peak operation.) During off-peak hours when equipment is shut down and ambient temperatures drop, the threat of condensation is greatly increased. With each day, the cycle of condensation and evaporation of moisture will begin to corrode sensitive electronics, and ultimately compromise the equipment.

Fortunately, Kooltronic has a solution to address this problem. In order to prevent the formation of condensation in electrical enclosures, it is necessary to keep the enclosure component temperature at a relatively constant rate. With the use of enclosure heaters from Kooltronic, supplemental heat can be introduced to keep temperatures above the dew point. Enclosure heaters are economical, offer a low start-up cost, take up minimal space and are offered in a wide range of capacities. A number of styles are available, including fan heaters and PTC heaters. All Kooltronic enclosure heaters offer the convenience of DIN rail mounting, and are available with independent thermostat control.



Kooltronic offers a variety of enclosure heaters in a wide range of capacities to ensure electrical enclosure temperatures remain consistent, protecting electronics against condensation.

Protect your electronics now from the dangers of condensation with enclosure heaters from Kooltronic.

To view these and other cooling products manufactured by KOOLTRONIC, please visit our website: <http://www.kooltronic.com>

For more information, please contact:

Steve Coulton  
Sales & Marketing Manager  
Kooltronic, Inc.  
Tel: (609) 466-3400  
Fax: (609) 466-1114  
E-mail: [scoulton@kooltronic.com](mailto:scoulton@kooltronic.com)

