

# CTC AppNotes

A series of technical documents written by members of the CTC community

## Slow-speed Sensors for Cooling Towers

Cooling towers are one of the critical portions of an industrial facility because of their cumulatively important function of helping the plant maintain a correct operating temperature. While any one cell may not be critical by itself, taken as a whole



Cooling Towers assist in maintaining plant operating temperatures.

the cooling tower array can be considered one of a plant's most important areas. Because of this as well as their inherently difficult to access nature, the cooling tower array is frequently one of the areas where full time remote monitoring is considered. Frequently cooling towers operate at very low speeds which can complicate data acquisition as well. Lower speed motors tend to provide harder to access data streams. For the slow speed fans which operate in many cooling towers, low frequency accel-



AC136-1A side exit sensors out put is 500 mV/g

erometers and velocity sensors are the sensors of choice. CTC's primary sensors for lower frequency data acquisition are the AC135/136 series accelerometers and the VE135/136 piezo-velocity sensors. Accelerometers such as the AC135-1A are usually the first choice for the very low speed fans( below 1 Hz) due to their broader range of response.



Valid data can be collected down to 0.2 Hz from a low frequency accelerometer. (Piezo velocity sensors are usually limited to 1 Hz and above.) The only caution might be that should the signal need to be transformed into a 4-20mA output, any slight errors or noise may be amplified by the signal conditioning unit and may introduce mathematical error into a data monitoring unit. For those situations piezo velocity sensors can be an excellent choice as the data is integrated to a velocity output before it is transmitted by the sensor.

VE135 Top exit sensors Internally integrates to velocity output.

If you have any questions or for further information please contact CTC directly Email CTC technical support staff at [dgripe@ctconline.com](mailto:dgripe@ctconline.com); [jsmith@ctconline.com](mailto:jsmith@ctconline.com) or call us toll free 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally

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If any CTC vibration analysis hardware product should ever fail, we will repair or replace it at no charge.