

Detection and Ranging for Level-Sensing Applications

The Challenge

Cooling towers in various industries (such as power stations, chemical plants, oil refineries, industrial plants, HVAC systems, etc.) use water to reduce the heat generated by their process. The mist created in these towers makes such environments steamy, which creates a particular challenge for traditional sensing technologies due to the fog-like conditions. Moreover, for some applications, industrial float ball level sensors are considered too intrusive.



For example, a cooling tower manufacturer was looking for an effective non-intrusive solution to continuously detect the level of water in their systems. The ultimate goal was to enable their end customers to monitor the water level and drain or replenish the system as needed to avoid overflow/drought and to adjust levels so that it contains optimal volumes at all times.

The Solution

For this application, the Leddar™One Sensing Module is the ideal choice, as its narrow, yet conic beam allows it to continually detect the level of liquids (or solids), regardless of the steam and other harsh conditions that may exist in that environment. Once the module is encased and integrated into the system, it can interface with the controller to provide a variety of sensing data, allowing for more advanced monitoring. According to the levels of water detected, the end user can even adjust the flow speed of the cooling process.

The LeddarOne single-element sensor module:

- Works very well in harsh environments (including steam/fog), as its diffused detection area makes it immune to ambient conditions
- Provides excellent detection range and ability to measure level precisely and in real time
- Delivers unrivalled ease of integration
- Is inherently non-intrusive
- Offers best overall cost/performance ratio, compared to other detection technologies

The Outcome

The cooling tower system manufacturer opted for the Leddar™One Sensing Module and enclosed it in a waterproof housing. The device was then installed at the top of the tower, looking down, and easily interfaced the sensor module to a controller. The Leddar™One module retrieves their level measurement data in real time, subsequently allowing them to make volume calculations, add fresh water or drain the system whenever necessary, and adjust the speed of water circulation, maximizing the efficiency of the entire process.

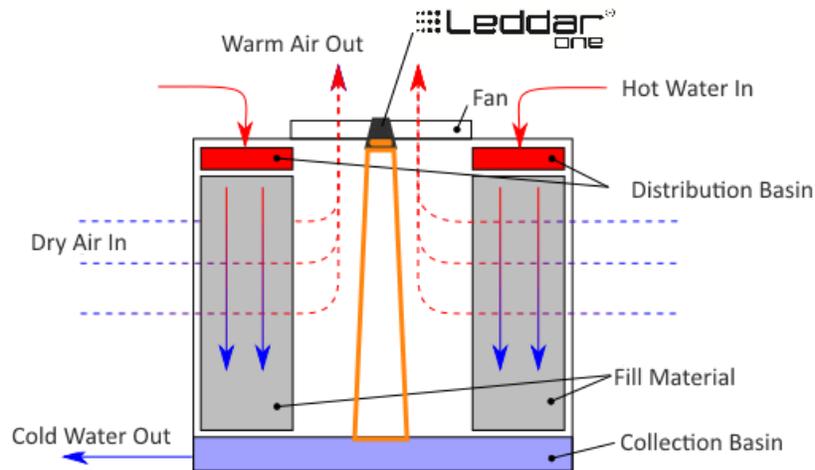


Fig. 1 – Schematic diagram of crossflow in cooling tower with Leddar™One Sensing Module facing down

Product References

- [LeddarOne Sensing Module](#)