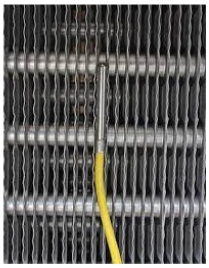

KE2therm Q.1.39 Low Velocity Evaporator Coil Sensor User Guide

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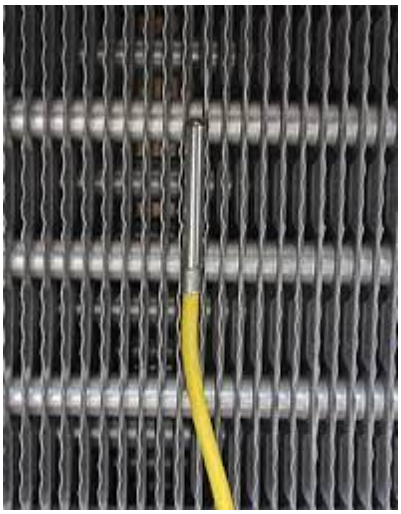


Contents

Air Sensor Location

The air sensor provides a key piece of information to KE2 Therm evaporator controllers. Although the installation

instructions provide guidance for the majority of evaporator coils, there are some special coil models that require more detailed instructions due to their construction.

The air sensor is responsible for control of Room Temperature, and is a critical input for the adaptive defrost algorithm. As such, it is extremely important that the air sensor provides accurate information to the controller.

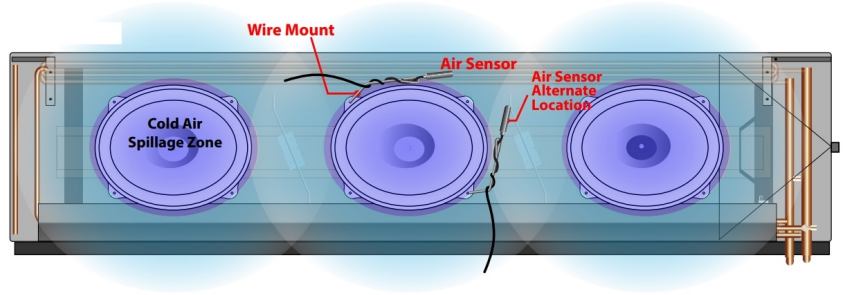
The typical configuration of these coils draws air up from the center of the evaporator, and pushes it outward through the evaporator coils.

As with any installation, the air sensor must sense the air temperature, and nothing else. Since the return air is coming up through the fans, the air sensor must be installed below the evaporator. Thus, when locating the sensor, the distance from the opening must be less than KE2 Therm's typical recommendation of 8" to 10".

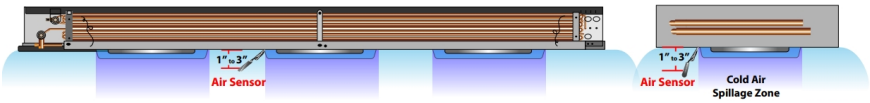
The installer must also **make sure the air sensor is NOT in the zone where cold air spills from the fan opening.** Sensors placed in the air spillage zone will send a temperature reading to the controller that is not indicative of the room temperature in general. See Bottom View for orientation.

Product Overview

Bottom View



Side View/End View



- **Cold Air Spillage Zone** – not accurate room temperature reading Cold Air Spillage Zone
- **Accurate Air Temp Zone** – indicative of Room Temperature

Coil Sensor Location

Low velocity style coils present a unique challenge due to their construction. It is typical for these style evaporators to consist of 2 separate evaporator coils, fed by a common expansion valve. This configuration creates a larger potential for inconsistent frost patterns. Consequently, extra care must be taken when locating the coil sensors. KE2 Therm highly recommends using two coil sensors, on these types of coils.

As with any installation using KE2 Therm controllers, the **proper location for the coil sensor is where frost on the evaporator coil disappears last, during a normal defrost cycle.** The most effective way to determine this location is to place the system into a defrost cycle. By watching the frost pattern, and how it disappears on your specific coil, the system itself will indicate precisely where the ice disappears last.

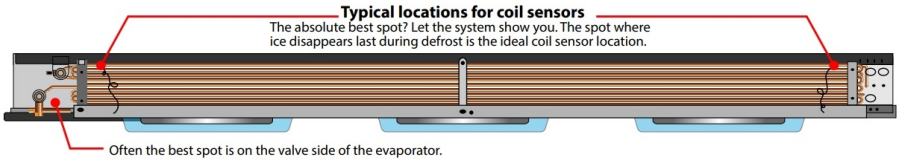
Electric Defrost – For electric defrost, sensor location is generally easy to identify. If the heaters are mounted to

the bottom of the coil, then the sensor should be mounted near the top of the coil, using a vertical orientation. See below.

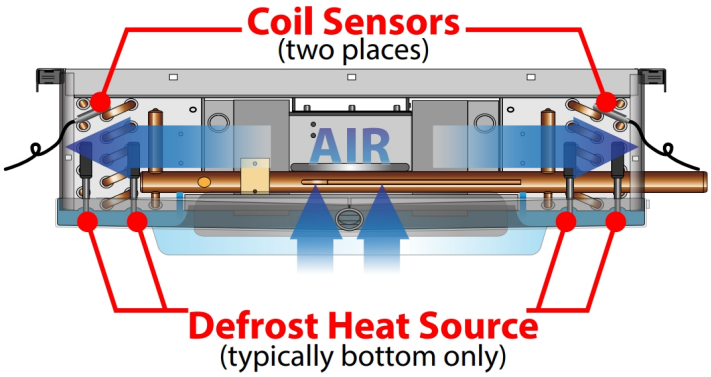
Air Defrost – Medium Temperature coils, utilizing an off-cycle defrost, use the air in the space as the defrost heat source. The proper location for the sensor is typically on the air exiting side (outside) of the evaporator.

NOTE: Whether the evaporator is utilizing Air or Electric Defrost, it is essential for the installer to leave a service loop long enough for the sensor to be relocated anywhere along the evaporator. This provides flexibility to make adjustments if necessary.

Side View



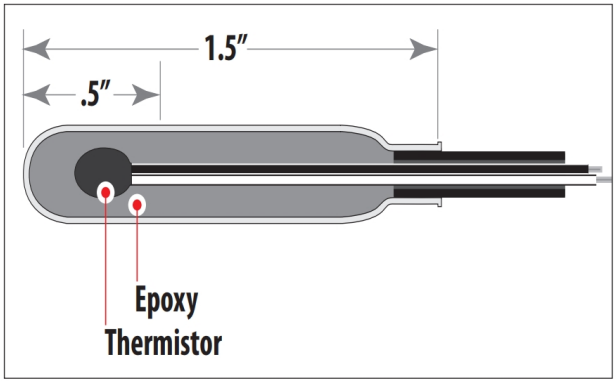
End View



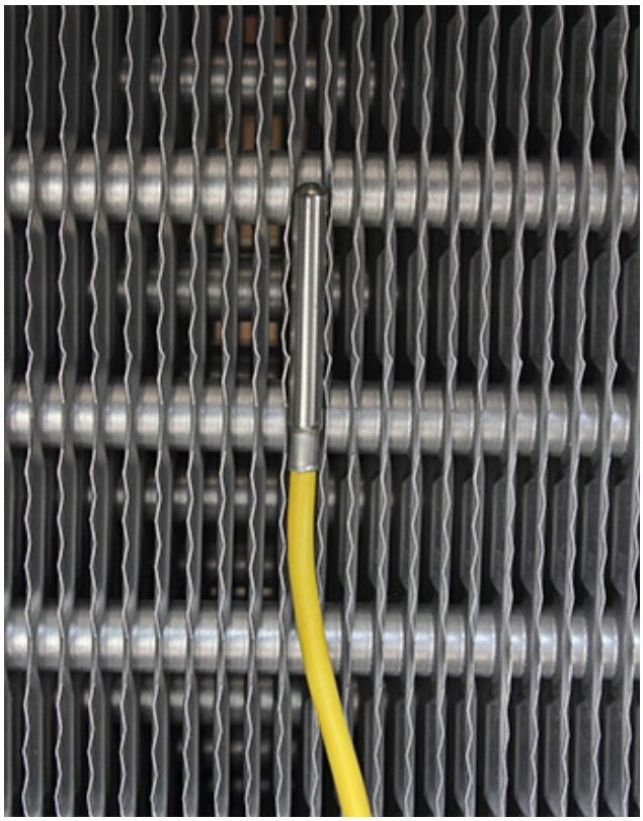
Coil Sensor Operation

Once the ideal sensor location is determined, the controller will bring that spot to termination temperature each and every defrost, and ensure the entire evaporator is clear of ice. When the controller restarts refrigeration after a defrost cycle, it now knows there is no remaining ice on this evaporator.

Installing the Coil Sensor



Note, the most active portion of the sensor is the first 1/2” of the 1-1/2” long stainless steel probe.



Warning Signs
If for any reason the controller cannot reach the termination temperature it will warn you **"Defrost Terminated on Time Not on Temperature"**. The controller is telling you that something is wrong, the system needs to be checked. Basically it is saying, "I'm running, but I can't clear my coil. Please help".

Alternate method – As the defrost termination sensor, it is important to ensure the sensor does not terminate defrost before all frost has been removed from the coil. In some installations, inserting the sensor into the coil may position it too close to the defrost heat source. An alternate method of positioning places the sensor vertically between the coil fins. This shows the coil sensor properly secured.

Support

Q.1.39 December 2021 supersedes all prior publications.

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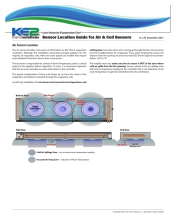
1.888.337.3358 . www.ke2therm.com

Documents / Resources

	KE2therm Q.1.39 Low Velocity Evaporator Coil Sensor [pdf] User Guide Q.1.39, Low Velocity Evaporator Coil Sensor, Q.1.39 Low Velocity Evaporator Coil Sensor

References

- ke2therm.com