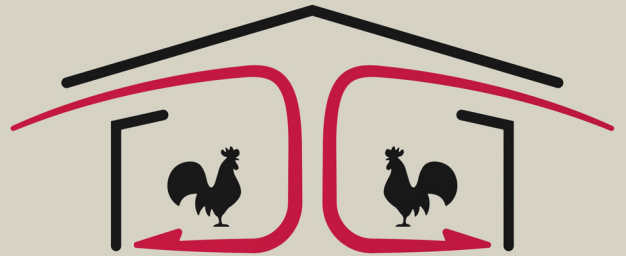




Poultry Housing Tips

Common Mistakes When Installing Controller Temperature Sensors

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Figure 1. Sensors should be placed within 5' -10' of a side wall.

A poultry house controller's temperature sensors are, in a sense, its "eyes" enabling it to "observe" what is happening throughout a poultry house so it can accurately determine what equipment it needs to operate to maintain the proper environmental conditions throughout a house. As a result, a controller's ability to maintain proper growing conditions for the birds is only as good as the information it receives from its eyes/temperature sensors. In today's large poultry houses, it is not uncommon for there to be significant variations in temperature from the center of the house to the side walls, as well as between the center of the house and the end walls/brooding curtain as well as from floor to ceiling. If a controller is unaware of hot or cold spots within a house, due to improper temperature sensor location, it cannot take the necessary corrective actions to address these hot and cold spots and bird performance, health and welfare can suffer.

The following is a list of mistakes commonly made when positioning controller temperature sensors within a house that can harm a grower's ability to provide the proper growing conditions for birds throughout their houses:

- 1) **Installing temperature sensors along the centerline of a house.** Temperature sensors

positioned along the center of the house tend to paint the prettiest picture of house conditions because this is where temperatures tend to be most stable. The problem is that conditions nearer the side walls can be very different during both summer and winter. During hot weather, the centerline of the house tends to be the coolest area of a house. But on a hot summer day, a controller needs to be aware of what is happening in the warmest locations to make sure those birds near the side wall are not becoming heat stressed due to naturally lower air velocities and heat entering through side wall curtains and/or poorly insulated concrete stem walls. Conversely, during cold weather, it tends to be cooler near the side wall than along the centerline of a house due to excessive heat loss from poorly insulated stem walls, side wall curtains, leakage and poorly performing side wall inlets. Lower air temperatures near the side wall can not only result in chilled birds but can result in not only chilled birds but also increased litter moisture due to the fact that cool air does a poor job of removing moisture from the litter. Higher litter moisture levels will in turn result in higher house ammonia concentrations and subsequent potential bird health and performance issues. The controller needs to see these cooler areas of a house so it can take corrective actions (i.e., turn on heaters) before bird performance and health suffer. The thing to keep in mind is that in general if the birds near the side wall are comfortable then most likely the birds toward the center of the house are comfortable as well. The converse is far less likely to hold true. As a result, to help ensure the maximum number of birds have optimal growing conditions, it is generally recommended to install temperature sensors within five to ten feet from the side walls (alternating sides of a house), ideally attached to either a feeder or drinker line.

- 2) **Installing temperature sensors too far from house end walls and/or brood curtain(s) of a house.** Often temperature sensors are positioned 40' or more from the end walls and/or brooding curtain(s) of a house. The problem with this is that these areas will tend to run cooler than they should during cold weather simply because the controller is unaware these traditionally leaky areas of a house are cool. As is the case with low air temperatures near the side walls during cold weather, low air temperatures near the end walls/brooding curtain tend to result in increased problems with caked litter, ammonia and chilled birds. In addition, feeder control pans are typically located near the end walls, and if it is too cool (or hot for that matter) there may not be enough birds in the area to eat enough feed from the control pan to trigger it to operate. To ensure that the areas near the end wall of a house remain warm and dry during cold weather, and there are sufficient number of birds to trigger feeder control pans, temperature sensors should be placed within 15' of the end walls/brood curtain(s).

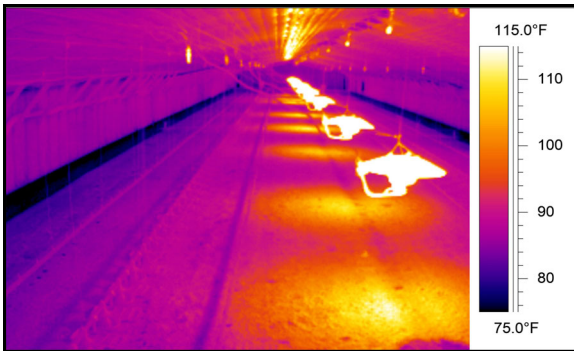


Figure 2. Sensors should be placed outside radiant heating zones of radiant heaters.

- 3) **Placing temperature sensors too close to a radiant heater.** The radiant heat produced by radiant heaters (brooders, tubes, etc.) will heat the floor and objects near them well above house air temperature. The closer an object is, a temperature sensor, for example, to a radiant heater, the more radiant heat it will receive and the more it will be heated above house air temperature. The problem is that those areas of the house that are receiving little to no radiant heat from a radiant heater may never reach optimal air temperatures because the controller may be determining house temperature based on sensors that are being heated to well above actual air temperature by the radiant heat produced by a house's radiant heaters. To help ensure that

areas further from the radiant heaters don't become too cool, temperature sensors should generally be positioned at the edge of a radiant heater's radiant heating zone (areas that are primarily being heated by the radiant heat produced by a radiant heater). For most radiant brooders, temperature sensors should be positioned no closer than 8 feet, and radiant tube heaters approximately 15 feet.

- 4) **Installing temperature sensors too high above bird level.** Sensors placed high above the floor are most problematic during brooding, especially in those houses without circulation fans. Sensors positioned two to three feet above the floor may be missing cool drafty conditions that may exist at chick level due to the tendency of cool, heavy leakage air to stay within a foot or so of the floor. To avoid this issue, sensors should be attached to drinker lines so that they start off a flock within six inches or so above the floor. This also helps ensure that the temperature sensors are kept out of the reach of birds as the drinkers are raised.



Figure 3. Sensors should be attached to a feeder or drinker line.

- 6) **Not installing temperature sensors with an extra length of wire.** Though a producer may have a pretty good idea of where temperature sensors should be located, having extra sensor wire stored at the ceiling can make it much easier to tweak sensor location. A producer may find it beneficial to move a sensor farther from the side wall or closer to the side wall. In addition, a sensor may be a little too close to a side wall inlet or radiant heater, resulting in the need to move the sensor a few feet.

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