

**Answers to Your Questions About:
Poultry House Controllers**

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1. There is a lot of interest in controllers in chicken houses—why should I replace my conventional thermostats and manual controls with a controller?

Answer: There are really two main reasons for putting controllers in chicken houses. The first is to provide a more consistent environment for the chickens at as economical a cost as possible. This consistent environment which can increase performance is becoming more and more important in the competitive poultry business. The other major reason for installing environmental controllers is to make controlling the environment a more manageable job. This is more important with today's larger farms and more heavily equipped housing. Can you imagine setting thermostats, timers, and curtain drop thermostats on a 12-house tunnel-ventilated broiler farm?

2. How dependable are controllers—what about power outages or lightning—what happens to my birds if the controller goes out?

Answer: Today's top-line controllers are much more dependable than their predecessors, just as today's television sets are much more reliable than they were 15 years ago. Advances in both semiconductor technology and the understanding of phenomena such as lightning have contributed to this increase in reliability. Manufacturers of agricultural controllers have also learned a lot about controlling the environment in today's chicken house. Today's better controllers also have good protection against electric line spikes and surges. If you take a direct lightning strike, it would probably get your controller. But with the right technology, you may not be hurt at all by most spikes or transient surges. However, notice the reference to "better" in this discussion. Lightning/transient protection costs money. Manufacturers of lower cost controllers simply cannot afford to put the protection in the device required for it to survive long-term.

Even the best electronic controllers however, are like other appliances in that sooner or later they WILL fail. You must be prepared for this failure with properly installed, maintained and managed backup systems. As a minimum you should have cooling over-ride thermostats on fans, curtain drops with thermostats, and an alarm system. You should also develop common sense habits, such as checking your houses immediately after a thunderstorm. Or in very hot or very cold weather where a power failure would prove disastrous. Every year there are producers who lose birds because their curtain drops weren't hooked up when a big thunderstorm came through and caused their main breaker to flip, and every bird in the house died.

3. Can a controller really do a better job of maintaining temperature?

Answer: A controller has the advantage of seeing the "big picture." It is able to turn on fans to produce varying levels of ventilation for your chickens *as the conditions in the building change*. And it is monitoring conditions 24 hours a day, seven days per week all year round. Modern controllers are capable of zoning heat, operating minimum ventilation fans at varying rates based on temperature buildup in the house, moving to natural ventilation, and then into tunnel ventilation as the temperature rises, and then bringing on foggers or evaporative cooling systems as needed. These systems can be set up to do all of this without grower intervention. And, probably most importantly, modern controllers can do all of this CONSISTENTLY. On the other hand, conventional thermostats are difficult to calibrate, keep calibrated, and keep adjusted throughout the course of a day or a growout. It can also be difficult to wire an entire modern chicken house so that heating and ventilating systems do not fight each other. But, perhaps the biggest disadvantage of conventional controls is that they do not keep the environment as close to the desired environment as well as good controllers can. The payoff comes from bird performance.

**Controllers allow
consistent & precise
environmental control**

**The better controllers
are highly reliable**

**However, backup
systems are needed**

**Good controllers make
continual automatic
adjustments to chang-
ing house conditions**

**Good controllers
are user friendly,
fully automatic,
and self-sufficient**

4. What should I look for when I am considering buying a controller?

Answer: There are several quality products on the market. One thing I see frequently when growers are having controller problems is sometimes they have not been thoroughly taught how to manage the controller. You must understand what you are trying to get the controller to do for you. Good support and help in getting started with a controller is very important. On more than one occasion good equipment has been blamed for problems that were the fault of lack of understanding of the operator. You should look for a controller with the following features:

1. It should be user-friendly, with a display that is easy to read and learn to use. In most cases, this will be a menu-driven controller.
2. It should be able to move automatically as needed from heating to minimum ventilation to transitional ventilation to tunnel (and back) without need for human intervention.
3. It should have enough data channels so you don't have to add extra contactors; that is, it should be self-sufficient.

5. What is PC compatibility and do I need it? I am not good with computers and don't want to jeopardize my birds with something I don't understand.

Answer: PC compatibility refers to the ability of a controller to be connected to a PC via some sort of networking. Different companies use different methods to interface the controller(s) to the computer. Some cost a lot more than others. The question of whether you need it has to do largely with personal opinion. In my opinion the day will likely come when all integrators will require it. The day may be a decade or more away and you may or may not be raising chickens by then and there will likely be more and more improvements in technology. Right now, the factors weighing in on the decision of whether or not to use this system include: your comfort with computers; your desire to monitor operation of your houses and to collect historical data for future reference; and how expensive it will be to connect the two. Today, the major strength of computer networking is in data collection, environmental awareness, and convenience. In the future, a computer network will become more important for things such as feed monitoring and even automatic re-ordering of feed from the integrator.

6. How much should I expect to pay for a typical controller installed in the house?

Answer: A good quality controller with a companion contactor panel and backup should cost around \$2000 for a new installation. Retrofits can be less than this figure or more depending on the circumstances. You need to get prices from more than one source. Make sure the prices you get include the controller and installation, not just the controller.

7. What is meant by backups?

Answer: Backups are systems such as curtain drops which operate when power fails, or mechanisms to cause fans to operate when temperature limits are exceeded. Fan backup systems can use thermostats, or more ideally be a fail-safe system capable of controlling multiple fans at once. Fan fail-safe units (a thermostat is not fail safe) are those whose contacts are held open when conditions are normal and which fall if the system itself fails, thus fail-safe. Curtain drops are fail-safe – that is, curtains will drop if power fails – as long as the winch locking panels are removed. It is important to have a curtain drop for each winch on a house, but also important to use a system that does not drop curtains with a simple flicker of power. The best thought on backup systems is to buy the simplest systems you can and to always remember that if you do not use and manage these systems you will eventually lose a house of birds.

**PC compatibility offers
extra benefits,
is not yet essential**

**Shop for prices
and make sure
installation is included**

**Backup systems are
essential, should be
fail-safe where possible**

The “Answers to Your Questions About:” series of *Poultry Ventilation Pointers* is based on actual questions raised by poultrymen in meetings and in the field. Have a question or two of your own? Write or call Jim Donald, Agricultural Engineering Building, Auburn University AL 36849, 334-844-4181.