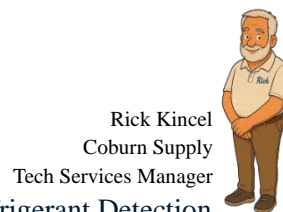




## What does the RDS do?



Since the advent of A2L (Slightly Flammable) refrigerants, the rule was made that a Refrigerant Detection Sensor (RDS) would have to be installed on the coil to protect the home in case of a leak in the coil.

This was kind of blown up (excuse the pun) because the ability of these two new A2L refrigerants to catch fire in the first place is so very remote, but the industry wanted to not take any chances. Forget the fact that these A2L refrigerant units are sometimes put on top of an A3 (highly flammable) heater like Propane and no detection device is needed if there is a leak on that fuel... hummmm?

The RDS's job, in case of a leak in the evaporator coil is to shut off the outdoor unit (to stop pumping refrigerant to the leak), turn on the blower of the indoor unit (to dilute the refrigerant with large volumes of air). Thinking is to minimize the pooling of refrigerant, to reduce the chance of ignition.

As a first step, this is a good thought process. Now let's look at it another way.

If the leak happens in the evaporator, whether the condenser is running or not, the leak will continue to leak until there is no more refrigerant in the system.

If that is the case, and a heat strip, or gas heater came on, it could potentially ignite the refrigerant that is leaking out.

So... If a manufacturer of a coil just shuts off the condenser there is a possibility it could still ignite.

Other things that now must be considered... Will the potential ignition source (heater) get hot enough to ignite the refrigerant if it came on in the presence of a leak? Well, if the coil manufacturer is the same manufacturer as the heater, then they have an engineering dept to check their products and say yes or no. If yes, then the heater must be disconnected when the RDS senses a leak too. If it doesn't get hot enough, then the AC is all that needs to be turned off.

If the coil is not of the same manufacturer as the heater, then no one knows if the heater that is near the leak will get hot enough to ignite the refrigerant and therefore the heater **MUST** be disconnected from operation if the sensor detects a leak.

Let's make this a little more complicated... If the system is a zone system (dampers that open and close automatically) and a leak is detected by the RDS, all zones need to be opened up to allow the air and diluted refrigerant to go through all ducts in the home and not to just one confined space. Again, if this is not programmed into a Manufacturer MATCHED A2L system, then the RDS from the coil must be smart enough to turn these dampers on, and open when the RDS trips and more importantly, it is the job of the HVAC installer to know how to wire all of these potential ignition sources and dampers to the RDS and make the system safe.

Are all RDS sensors the same? Well, that would be too easy... in fact they are very manufacturer specific. Additionally, they are sometimes refrigerant specific, coil size specific, and may have different switching options as well.

So, if we are honest, if ease of installation, safety protection, and engineering of the A2L refrigerants is important to you, then it may be best to use the same manufacturer of all the components in your system in case of an issue down the road.