

HVAC TIPS

4 TYPES OF CONDENSATE SAFETY SWITCHES AND WHY THEY MATTER

An HVAC condensate safety switch is a device designed to prevent water damage caused by the overflow of condensation that accumulates in an air conditioning or heating system.

In an HVAC (Heating, Ventilation, and Air Conditioning) system, moisture is generated as a byproduct of the cooling or heating process, which collects in the evaporator coil and drains through a condensate line to a drain pipe or condensate pump. However, if the condensate line becomes clogged or the pump fails, water can overflow and cause damage to floors, ceilings, and walls.

A condensate safety switch is installed in the HVAC system's condensate drain line and is designed to shut off the system if the drain line becomes clogged or the pump fails, preventing water damage. The switch can be wired to shut off the system completely or just the cooling or heating function, depending on the configuration of the HVAC system.

Condensate safety switches are typically required by building codes and regulations

to ensure the safe and proper operation of HVAC systems, especially in areas where water damage is a concern.

Key takeaways

- Designed to prevent water damage
- Typically required by local building codes
- Most often installed in the drain pan or line
- Inexpensive alternative to water damage
- Should be installed by HVAC professionals

What is an HVAC condensate drain pan safety switch, and why is it recommended?

An HVAC condensate drain pan safety switch is an additional safety device that is installed in the secondary drain pan of an HVAC system. The secondary drain pan is located below the primary drain pan and is designed to catch any water that may overflow from the primary pan due to a clogged drain line or a malfunctioning condensate pump.

Common Condensate Drain Pan Safety Switches



Beckett 1502S



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The condensate drain pan safety switch is typically a float switch that is activated when the water level in the secondary drain pan reaches a certain level. When this happens, the switch sends a signal to the HVAC system's control board, which shuts off the system to prevent any further water damage.

The installation of a condensate drain pan safety switch is highly recommended in HVAC systems, especially in areas where water damage can cause significant harm or if the HVAC system is located in an attic or other hard-to-reach areas. Without this safety device, water damage from overflowing condensation can go undetected for extended periods, causing significant structural damage and potential mold growth.

By installing a condensate drain pan safety switch, HVAC technicians and homeowners can have peace of mind knowing that their HVAC system is protected against water damage and potential health hazards. It is important to note that building codes and regulations may require the installation of a condensate drain pan safety switch, depending on the location and type of HVAC system.

To prevent the unwanted collection of condensate water, it should be drained away by gravity through a drain pipe or hose. If gravity drainage is not possible, a condensate pump is used to automatically pump the condensate water to a drainage point or sewer drain.

What are the most common types of HVAC condensate safety switches?

- **Drain Pan Safety Switches:** These switches are installed in the HVAC system's drain pan and are activated when the water level in the pan rises above a certain level. Drain pan float switches are typically used in secondary drain pans to prevent overflow.

Condensate Drain Pan Float Switches



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Common Condensate Drain Line Safety Switches



Safe-T-Switch SS1



Safe-T-Switch SS2



DiversiTech CS-1



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- **Drain Line Safety Switches:** These switches are installed in the primary drain line and are activated when the water level rises above the normal level. Drain line overflow switches are used to prevent damage from clogged primary drain lines.

Condensate Drain Line Safety Switches



Safe-T-Switch SS1



Safe-T-Switch SS2



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- **Pressure Switches:** These switches are installed in the HVAC system's condensate line and are activated when there is a drop in pressure caused by a clogged drain line or malfunctioning pump. Pressure switches are often used in commercial HVAC systems.

- **Temperature Switches:** These switches are installed in the HVAC system's evaporator coil and are activated when the temperature exceeds a certain level due to a clogged drain line or a malfunctioning pump. Temperature switches are often used in commercial HVAC systems.

The type of HVAC condensate safety switch installed will depend on the specific requirements of the HVAC system and the local building codes and regulations. It is important to consult with a qualified HVAC technician to determine the appropriate type of safety switches for a particular system.

How to install an HVAC Condensate Safety Switch

Installing an HVAC condensate safety switch is not a DIY job. It requires the expertise of a qualified HVAC technician who can help you choose the right type of switch for your HVAC system, and ensure that it is properly installed and maintained. The technician will also be able to advise you on local building codes and regulations that may require the installation of a condensate safety switch.



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Final thoughts on Condensate Safety Switches

As outlined above, an HVAC condensate safety switch is an essential component of any HVAC system that can help prevent costly water damage and health hazards. By installing a condensate safety switch, you can enjoy peace of mind knowing that you are protected from the risks associated with excess condensation. Be sure to consult with a qualified HVAC technician to determine the appropriate type of switch for your system, and ensure that it is properly installed and maintained per the building code in your area.

Other Resources

- [What is a Condensate Safety Float Switch](#)
- [Beckett Condensate Safety Switches](#)
- [Beckett Condensate Pumps](#)
- [Ultimate Guide to HVAC Condensate](#)