

SOLID STATE RELAYS IN COMMERCIAL HVAC APPLICATIONS

Background

HVAC systems can be found almost anywhere to provide thermal comfort to people inside homes and buildings. Outside climates can vary wildly so these systems are required to maintain inside temperature in a comfortable level and provide good indoor air quality.

One of the main types of HVAC systems used are the ones called Air Handlers (AHU), which are used mainly in medium to large commercial and industrial buildings. These systems are typically mounted in the ceiling and they take outside air, filter it, heat it or cool it, dehumidify it if necessary and then distribute it through ducts across one or several sections of the building.

Air handlers normally consist of large metal boxes containing several different components such as blowers, filters, heating/cooling elements, dampers and in some cases, heat exchange devices.

SSRs can handle almost any type of load used in HVAC systems and they are perfect for use in heating control applications.

Solution





Sensata offers a wide range of solid state relays and contactors that can be used in commercial HVAC systems to keep them running smoothly and reliably. A lot of these systems still use electromechanical contactors and relays while some older systems even make use of mercury displacement relays (MDR), due to their higher life expectancy compared to traditional EMRs, but these are being discontinued due to the toxicity of that substance.

Solid state relays offer many advantages when used in these systems, such as long life expectancy, no mechanical noise, low input current and fast response, so they are well suited for replacing these older switching technologies.

SSRs can handle almost any type of load used in HVAC systems, such as fans/blowers, motors, compressors and they are perfect for use in heating control applications, where there is a requirement to switch electric heating elements on and off constantly to maintain a certain temperature. In some cases, a more precise temperature control can be achieved by using a proportional power control method such as phase angle control or burst fire control, which can only be done using a solid state device.

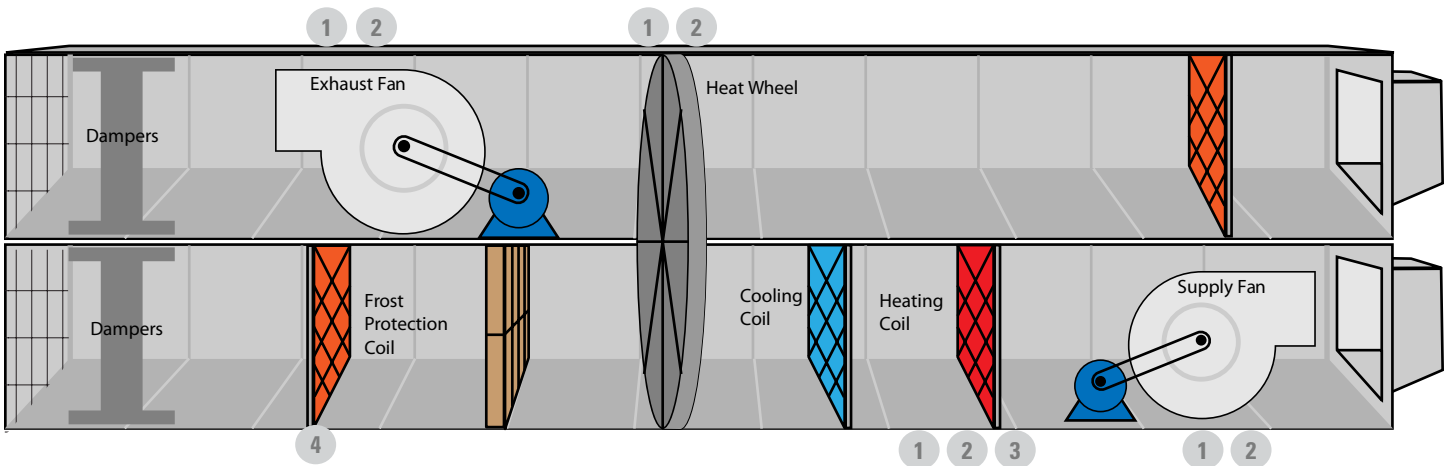




| Reference on Diagram | Product | Function | Features | Brand |
|----------------------|---|--------------------------------------|--|--------|
| 1 |  DR67 Series | Fan/Motor Start/Stop Heating Control | <ul style="list-style-type: none"> DIN Rail Mount 3-phase solid state relay 25 to 75 Amp ratings Large cage clamp terminals Compact size (67.5mm wide) | Crydom |
| 2 |  PM67 Series | Fan/Motor Start/Stop Heating Control | <ul style="list-style-type: none"> Panel Mount 3-phase solid state relay 25 to 75 Amp ratings Large cage clamp terminals Built-in overvoltage protection | Crydom |
| 3 |  PMP Series | Heating Control | <ul style="list-style-type: none"> Single phase proportional control SSR 25 to 90 Amp ratings Multi-function Selectable control input | Crydom |
| 4 |  DR22 Series | Heating Control | <ul style="list-style-type: none"> DIN Rail mount single phase solid state relay 20 to 35 Amp ratings Relay or contactor configuration Built-in overvoltage protection | Crydom |



COMMERCIAL AIR HANDLER UNIT



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Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

CONTACT US

Americas
 +1 (877) 502 5500 – Option 2
sales.crydom@sensata.com
Europe, Middle East & Africa
 +44 (1202) 416170
ssr-info.eu@sensata.com
Asia Pacific
sales.isasia@list.sensata.com
 China +86 (21) 2306 1500
 Japan +81 (45) 277 7117
 Korea +82 (31) 601 2004
 India +91 (80) 67920890
 Rest of Asia +886 (2) 27602006
 ext 2808