
EXPERT TIP #3

How override functionality can help to create a safe, healthy indoor climate?

Large buildings need sophisticated HVAC systems in order to control the climate within a building properly. This can actually save lives, right from keeping evacuation routes smoke free in case of fire to maintaining pressurization in hospitals to limit airborne bacteria.

Proper integration of HVAC components into a building smoke control system is vital and modern systems can perform sophisticated tasks, such as, for example, automatically changing the evacuation route depending where a fire is detected. As the automation system plays a really important role in this, it needs to be planned carefully and installed properly, ensuring that the building is safe for occupants.

Override functionality, which is a key feature in modern variable speed drives (VSDs) such as ABBs ACH580 series, is critical for controlling the indoor climate of buildings, not just in extreme situations but in everyday use. The main task of the override mode is to keep the motor spinning and ensure the climate is kept within a predefined range, even during abnormal situations.

In the event of a fire, basically two functions of HVAC fans are required: to extract smoke and to bring in and manage fresh air flows. It must be ensured that no additional oxygen is being fed to the fire, while at the same time delivering air to escape routes and safety zones. Smoke control strategy depends on numerous factors such as the number of floors and the construction of the building, but usually it implies pressurization technique in combination with compartmentation. One of the most challenging types of buildings are large sports arenas, where there are no fire doors as such. The system would automatically need to figure out which fans are blowing the fresh air and which ones are getting rid of the smoke. Large open buildings always require the most intelligent HVAC systems. Regardless how the building is designed to operate in a fire situation, the ACH580 drive for HVAC offers the flexible override capabilities to meet the design specifications and ensures that smoke control systems are more robust during adverse conditions.

Other areas, such as hospital operating theatres, must be positively pressurized to adjacent corridors and rooms. The override mode has historically been associated with emergency cases but in hospitals and sterile environments the override mode is used every day. The drive is part of an air delivery system that must deliver positive pressurization under constantly changing conditions of daily use of the building.

Hospitals, data centers and other mission-critical environments all require very specific indoor climates and they simply cannot tolerate failure. ABB ACH580 drives come with the ability to shift from normal mode to override mode and then back again seamlessly without interrupting the

operation the HVAC system. Even in buildings where override is used for evacuation purposes, regular inspections and test runs will not upset the system even when it is running. Essentially the indoor climate and the level of over pressure will not change. In addition, ABBs global service and support network provides help whenever and wherever needed. This is highly important when considering pressurized operating theaters and other critical applications where components are often needed quickly and the expertise to fit them has to be readily available.

You can learn more about ABB drive and motor solutions for HVAC on our [webpage](#).