

## STAIRWELL & LIFT SHAFT PRESSURISATION CONTROL SOLUTION

One of the most hazardous situations that can be faced in a building is smoke. While fires themselves are often damaging, it is smoke that can cause the most injuries.

A smoke control system protects a building's occupants, as well as furnishings and equipment that may be damaged by smoke. A smoke control system controls the flow of smoke in a building in the event of a fire. It keeps smoke from spreading throughout the building and gives the building's occupants a clear evacuation route, as well as preventing further damage to the building's interior.

Eurotec have developed the Lift Shaft & Stairwell Pressurisation Controller, which enables control of the pressurisation fan in your stair well or lift shaft during a fire hazard. It does this by monitoring smoke sensors placed in the supply duct and stairwell/lift shaft.

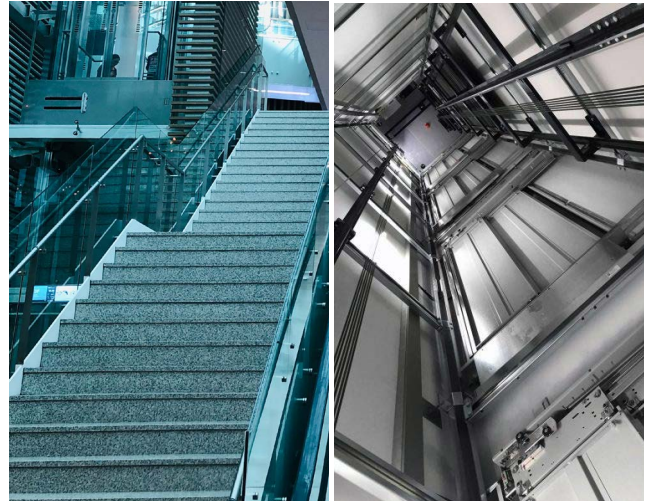
## Building Pressurisation

The primary means of controlling smoke movement is by creating air pressure differences between smoke control zones. The basic concept of building pressurisation is to establish a higher pressure in adjacent spaces than in the smoke zone. In this way, air moves into the smoke zone from the adjacent areas and smoke is prevented from dispersing throughout the building.

## Dedicated and Non-dedicated Systems

Smoke control systems are either dedicated or non-dedicated. A dedicated smoke control system is installed in a building for the sole purpose of controlling smoke. It is a separate system of air moving and distribution equipment that does not function under normal building operating conditions. Dedicated systems are used for special areas, such as elevator shafts and stair towers that require special smoke control techniques.

Non-dedicated smoke control systems are systems that share components with some other systems such as the building automation (HVAC) system. When activated, the system changes its mode of operation to achieve the smoke control objectives



## Outline of System Operation

The Lift Shaft/Stairwell pressurization controller enables control of the pressurisation fan in your stair well or lift shaft during a fire hazard. It does this by monitoring smoke sensors placed in the supply duct and stairwell/lift shaft.

The system will ensure the sequence of fan and damper initiation performance, where motorized dampers are used. The Eaton variable speed drive has an inbuilt fire-mode that over rides all inbuilt overload safety devices allowing the pressurization fan to run for as long as possible before failure.

Our unit comes standard with manual control of the functions of the supply air fan and zone smoke control dampers. It also offers Low- and High-level interface and can be integrated with any new or existing BMS system.

### Automatic Mode

#### Stairwell

- Pressurisation fan will operate as normal by supplying fresh air in to the stairwell or lift shaft.
- If smoke is detected by any of the smoke sensors the pressurization fan will be forced into fire mode and all mechanical fire dampers will close.
- The controller will stay in fire mode until smoke has cleared or the controller has been reset.

#### Lift Shaft

- Lift shaft pressurisation fan shall automatically operate to provide air pressurisation in initiation of fire mode.
- Open the normally closed motorized damper used for direct pressurisation.
- Stop if smoke detectors installed within the lift shaft or lift room are activated.

### Manual Mode

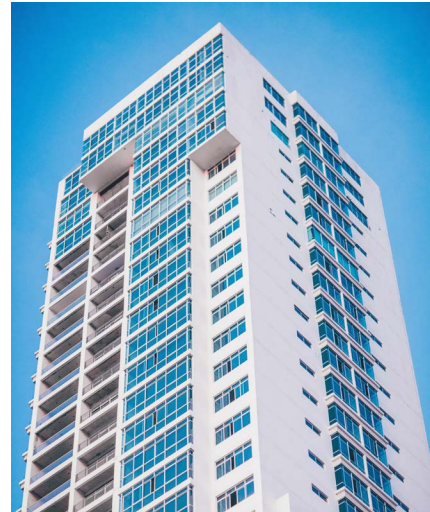
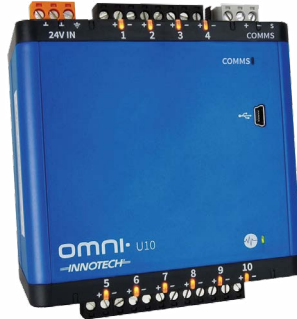
- Controller will disregard all sensor inputs and run selected fans at 100% or preselected speed.
- Individual mechanical switch for fire dampers will allow user to open and close dampers. Mechanical switch will indicate Fire/ Auto/ Non-Fire.

## Multiple Level Expansion

Our standard unit can monitor dampers and smoke sensors for up to 5 levels. If your building has more levels an expansion board can be used to add to the system.

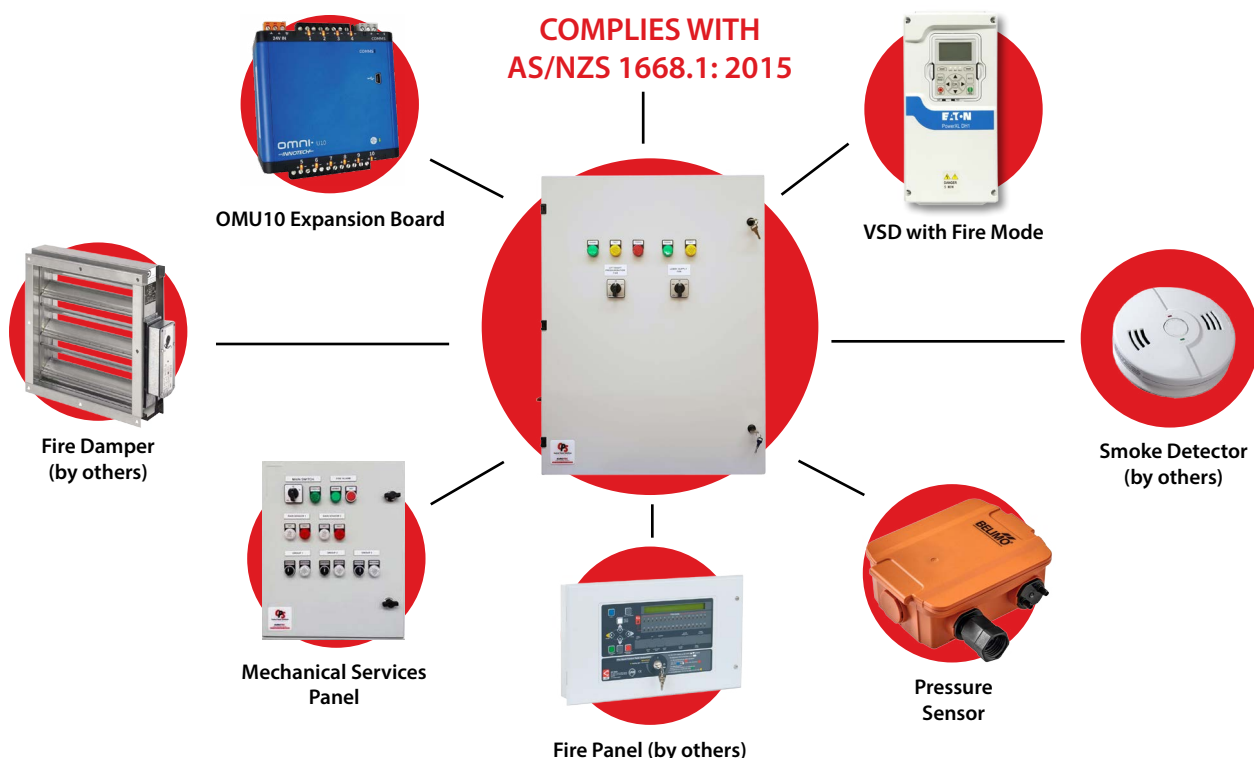
In the case of more than one stairwell or lift shaft, we can link multiple controllers and have one system or leave the controllers to operate as individual systems.

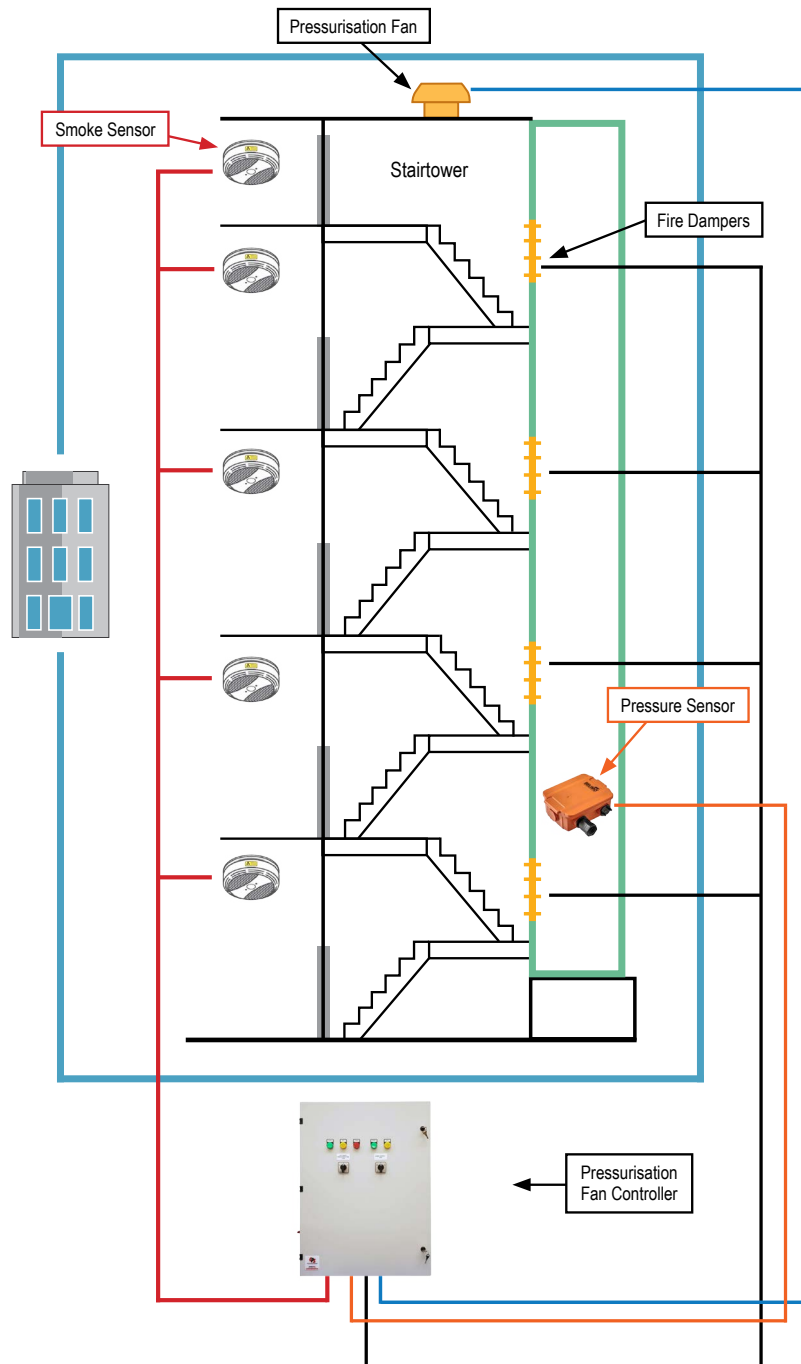
Our controller can be fully integrated into any BMS system using Bacnet or if required Modbus protocols.



## WHAT'S INCLUDED IN THE SYSTEM?

- The whole system is supplied in an IP rated powder coated steel enclosure
- The Control Panel is fitted with 4 Indication lights, to indicate Run, Stop, Fault, Fire mode.
- Variable speed drive with built in Fire mode for control of the Pressurization fan.
- Innotech controller for controlling the system.
- Full fire panel integration with fan control override switches as well as damper control switches.
- The standard unit can control up to 5 levels in a building consisting of 1 smoke sensor and 1 smoke damper per level as well as a 1 pressure sensor for the lift shaft/stairwell.
- Expansion boards can be added for additional levels. Up to 5 levels per expansion board.
- Easy installation and connectivity for sensors and dampers.
- This system is customizable to any building layout or design. If extra control is required for different equipment we are able to incorporate this into our unit.
- Manual override access for fan.
- System reset access for the fire panel.





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