Safegard Systems

THE DAMPER SPECIALIST COMPANY

Safegard V4

Bespoke Intelligent Damper Control and Monitoring System

Range and Features

- All system wide activity is logged and viewable for diagnostics and preventative maintenance
- Devices powered by closest distribution board
- Flexible system architecture
- Full diagnostics for system and device integration from embedded panel controller
- Intelligent BMS link provided (various protocols available)
- Graphical User Interface displays all live system activity, including damper and input/output details/status as well as cause and effect programming
- Solid State embedded controller
- Subsystems supported from one panel
- Text fields facilitate clear description of device references and locations
- Will control and monitor many variants of motorised Dampers
- 2 core network cable, utilising daisy chain method of wiring to all devices, offering reduced wiring costs.

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Smoke... the silent killer

Introduction

Consultants in the field of fire engineering have long recognised the damage and danger to human life that can be caused by smoke spreading through buildings, even when the fire is confined to a small area.

Smoke/fire protection can save human lives as well as keeping damage to property and contents to an absolute minimum.

Control measures for smoke/fire protection, in old and new buildings, comprise a wide variety of systems and items of equipment that must be carefully integrated in order to ensure maximum safety.

One of the most important tasks is performed by the automatic smoke and fire dampers that are incorporated into HVAC systems. In an emergency they must close immediately to contain the smoke and fire and prevent their spread through the ducting or open immediately to allow smoke extraction to take place.

The Safegard V4 system represents the latest evolution of smoke/fire damper control. The system has been designed with the user in mind, providing an advanced tool that simplifies installation and commissioning of smoke/fire dampers and peripheral devices. The embedded panel controller operates on an embedded platform and utilises solid state technology for optimum reliability.

It's server architecture delivers benefits such as reduced commissioning time, simplified operation and scope for future growth and flexibility.

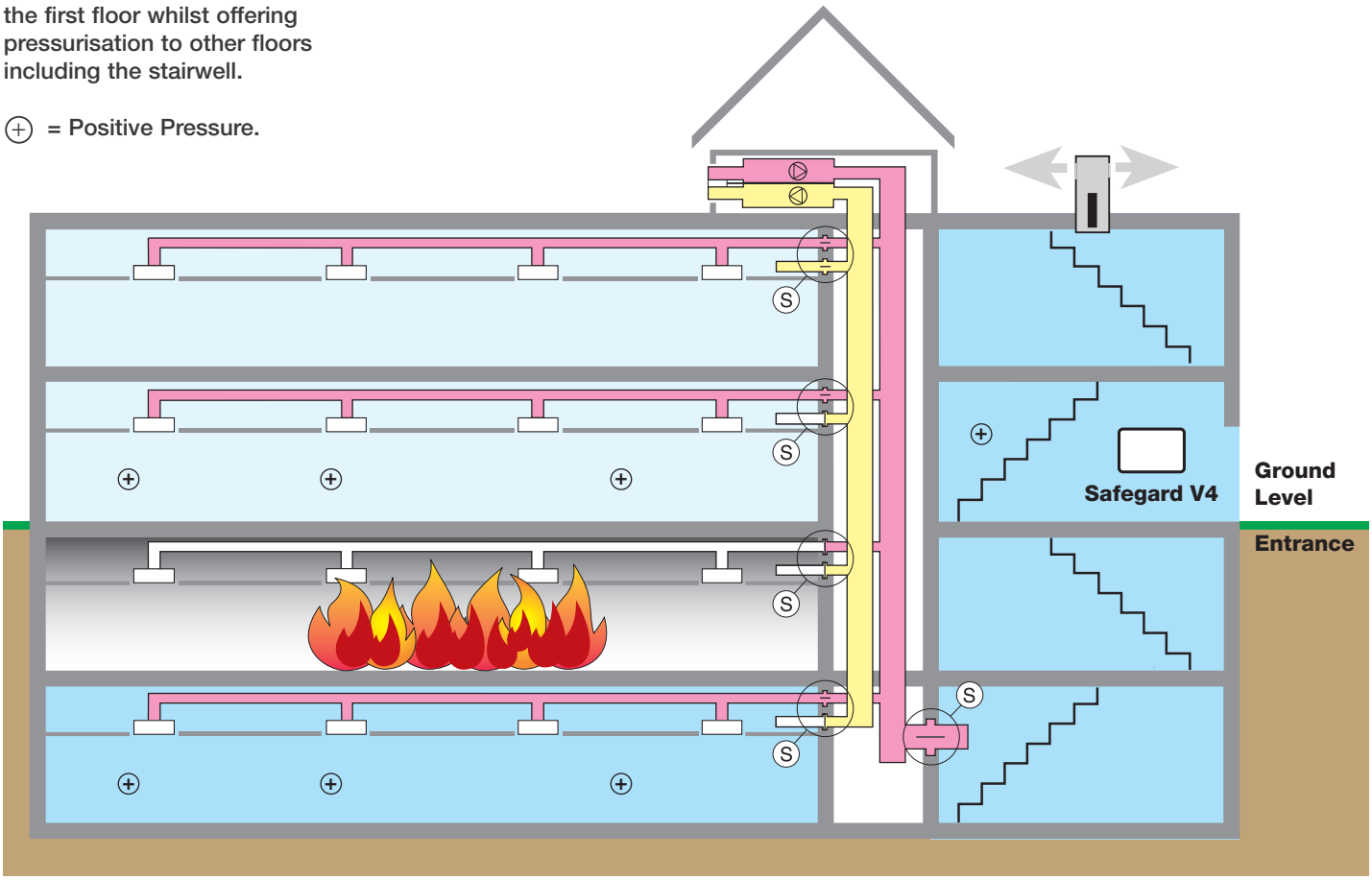
The Safegard V4 Intelligent smoke/fire Damper typical Control System application.

The Safegard V4 system is designed to protect life and property from damage caused by smoke and fire, by providing the means to:–

- Compartmentalise fire zones.
- Reduce the spread of smoke and fire.
- Keep escape routes and fire-fighting access open.
- Allow pressurisation and smoke extract by combined operation of dampers and fans.
- Allows complex strategies (cause and effect).

Ⓢ Denotes Automatic smoke/fire Damper in smoke containing mode on the first floor whilst offering pressurisation to other floors including the stairwell.

⊕ = Positive Pressure.



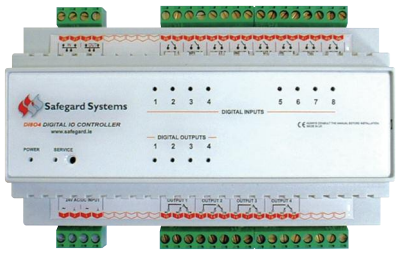
Specification

Control Panel

Control Panel

The Safegard V4 System consists of a 12 inch embedded panel controller, UPS and pre-loaded software. The system communicates with damper interfaces to provide intelligent control and monitoring of motorised dampers and monitoring of manual fire dampers. The data network cabling enables substantial reduction in costs when compared with conventional systems. Digital input/output devices can be accommodated on the network cable or located within the panel enclosure.

The embedded panel controller is supplied with Safegard V4 software and operates on an embedded platform, which is extremely user friendly. The server architecture delivers benefits such as flexibility, reduced commissioning time, ease of configuration, simplified operation, future system growth, full diagnostics for system and device integration along with optional automatic scheduled damper testing.



Digital Input / Output Device (DI804)

This device accepts eight volt free contact inputs into the Safegard V4 System. Typical inputs would be from fire alarm panels, fireman's override switches, manual call points and smoke detectors.

This device also provides four relay outputs to be driven from the Safegard V4 System. Typical outputs would be to fans and BMS systems.

Complex strategy (cause and effect) lists , included priorities can be driven from this input / output device which is located within the embedded panel controller enclosure.

Other I/O devices are available for panel or field location.

Mimic Panels

Bespoke LED mimic panels are available to clients' specification.

Firefighter's Override Panels (FOP)

Bespoke key switch or push button firefighter's override panels are available to clients' specification.

Damper Interfaces

The damper interfaces, except for the 3 PSFDI, accept local auxiliary inputs (normally duct smoke detectors) which can drive cause and effect schedules.

Smoke Fire Damper Interface (SFDI)

This device, is required for each smoke fire damper used with the Safegard V4 System .

The SFDI controls and monitors motorised smoke/fire dampers. The device ensures correct operation and status of the damper and provides an alarm at the PC Panel in the event of local power supply failure.

3 Position Smoke Fire Damper Interface (3PSFDI)

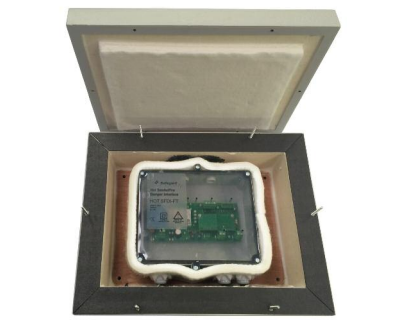
Actuator can be set to a balanced position or driven one way and fail safes the other via spring return. Actuator can alternatively be modulated via 2 – 10V signal from BMS.

Smoke Damper Interface (SDI)

Energises actuator to drive open/drive closed damper.

Fire Damper Interface (FDI)

Monitors damper position and provides facility for energising an electromagnet. Damper fail safes closed via its spring mechanism and must be manually reset.



Hot Damper Interface Enclosure (HDIE)

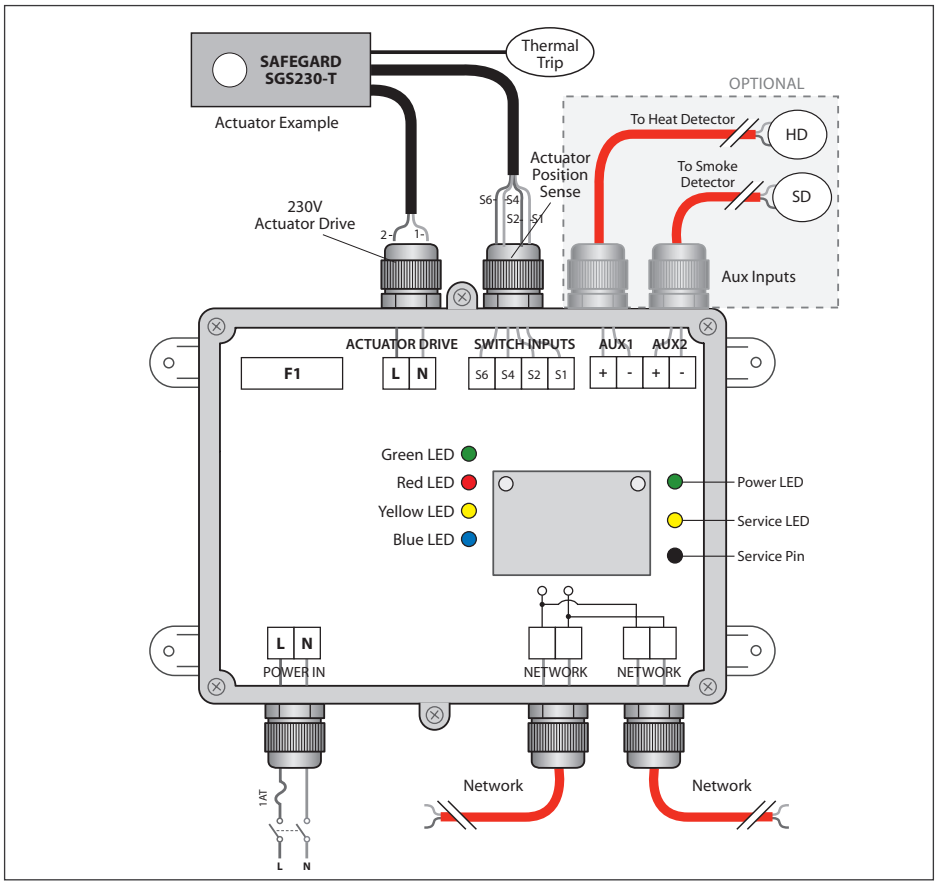
The HDIE offers protection of the various interfaces to control and monitor Hot dampers up to 300 °C for 2 hours.

The HDIE consists of two separate materials, enabling the damper interfaces to function at the extreme temperature specified. The outer casing has endothermic properties that significantly slow down the internal temperature rise in a high temperature emergency condition.

The inner casing is a special thermal insulating material.

The unit has been tested and independently witnessed.

SFDI Wiring Detail



Control Options

System will control and monitor most motorised dampers and offers monitoring of any dampers that are manually reset.

Typical Operation

Power On – Damper resets
Power Off – Spring release
Release Time ≈ 22 secs.
Reset Time ≈ 60 secs.

24V AC or DC

Connect 24V via a safety isolating transformer.

230V AC 50 / 60Hz

1 amp fused spur to be provided. EN wiring regulations to be observed.

Power Consumption

24V AC or DC
230V AC
Maximum power consumption for combined SFDI plus 24V or 230V actuator is <15W.

LED Behaviour

Function	Green ●	Red ●	Yellow ●	Blue ●	Service (Yellow) ●	Power (Green) ●
Open	On	Off				On
Closed	Off	On				On
Travelling	Flashing	Flashing				On
Fault			Flashing			On
Ping (Communicating)				One-shot		On
Offline	On	On	On	On		On
Wink					Flashes for 5 secs	On

Cable Specifications

Cable Type		Fire rated	Max length between devices	Max length of network channel	Conductor size
Belden 8471 NH	2 core		400m	500m	1.3mm²
Prysmian (Pirelli) FP 200 Gold	2 core	●	400m	500m	1.5mm²
Prysmian (Pirelli) FP Plus	2 core	●	400m	500m	1.5mm²
Firetuf FT30	2 core	●	400m	500m	1.5mm²
Firetuf FT120	2 core	●	400m	500m	1.5mm²

These cable specifications are fundamental to the stable and reliable operation of your smoke/fire control and monitoring system.

Failure to adhere to these specifications will result in unstable and unreliable network communications and will void all warranties.

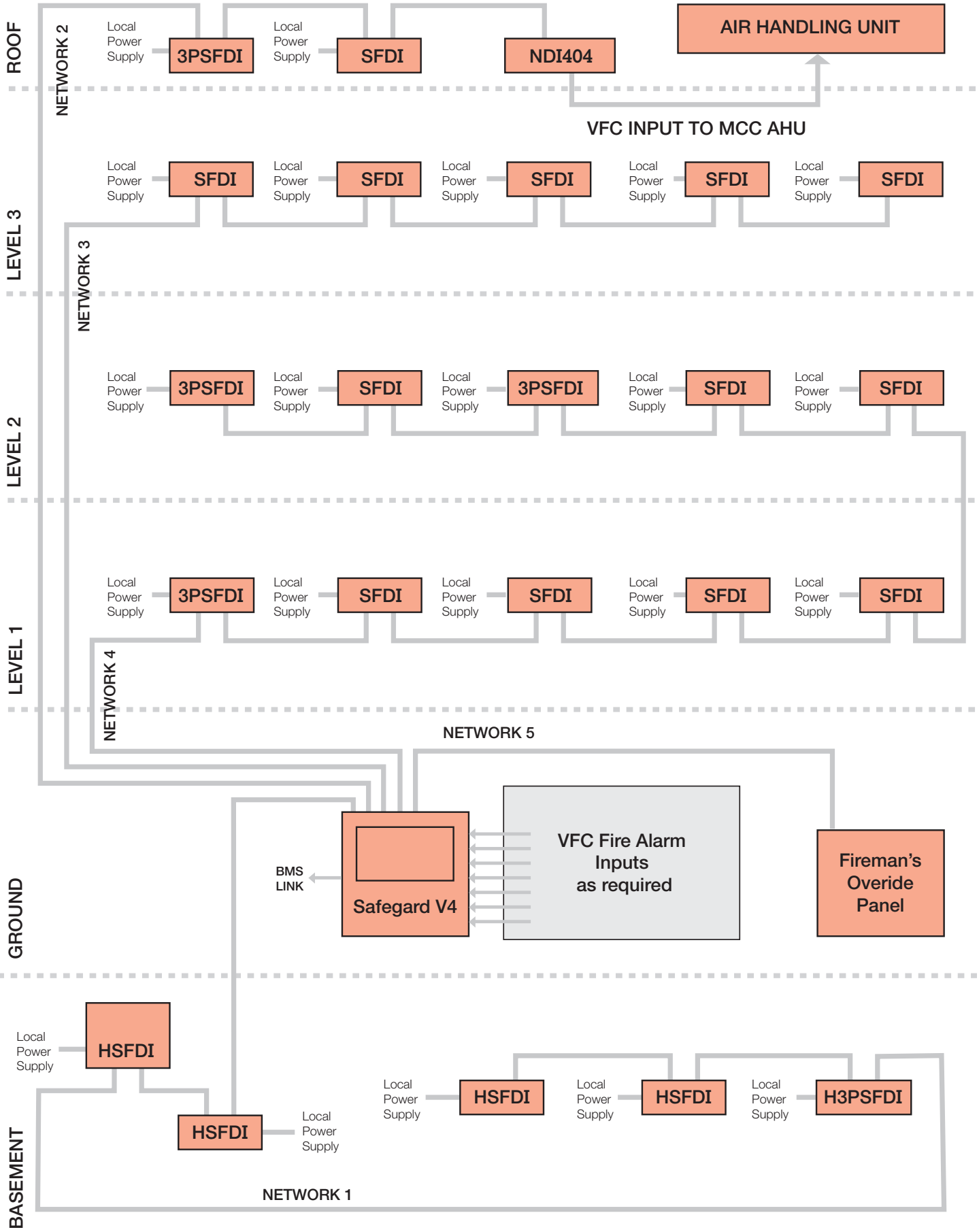
1. Maximum number of Smoke Fire Damper Interfaces (SFDI's) or any other field devices per network channel is 60. If >60 and / or >500m a network extender is required.

   N.B. A multiple damper requires one SFDI per damper/section.

2. If wired as a loop,the network is polarity sensitive. In all other instances, the network is polarity insensitive.
3. Networked devices are wired in a simple 'daisy chain', (in and out). No cable stubs permitted.

Typical Network Schematic

Note: Each damper interface controls/monitors a damper.



Benefits

- Safegard experience and know-how in the damper market
- Safegard Smoke/Fire Dampers CE Marked and LPCB approved
- Allows for phased commissioning and future expansion
- Backward compatible
- CE marked, EMC and LVD compliant
- Customer testimonials available
- Hundreds of prestigious reference sites
- Meets EN harmonised standard for railway environments and London Underground
- Powerful and very flexible functionality accommodates any last minute changes to strategy, zones, damper quantities, references and descriptions etc and enables standardisation of software (no bespoke site specific versions required)
- Off site system cause and effect witnessing can be arranged
- Open and interoperable protocol allows possible support by others and future proof lifecycle preventative maintenance costs
- Optional networking of panels to a central control and monitoring panel - up to 32 networked panels to meet practically any building's damper requirements
- Optional automatic scheduled damper testing, including omit option for critical dampers
- Optional remote access via internet
- System designed to cater for environmental occupancy (energy saving) as well as the building's smoke/fire strategy

System Commissioning

Safegard offers a comprehensive after sales service to include pre-commissioning checks and a complete commissioning service for all our products.
Our Standard Commissioning service includes the following:–

- Attendance at all necessary induction courses and site familiarisation.
- Final connections of inputs to system from fire alarms, override switches, BMS etc.
- Final connections of each damper interface unit, electrical contractor to have ensured all necessary cables are entered into enclosure glands.
- Establishing communication to each damper interface unit.
- Viewing of damper blade movement to check operation.
- Configuring of the relevant cause and effect.
- Demonstration / witnessing of 15% of dampers installed. Full witnessing available by special request.
- Client Training on the system.

Customer Service

Safegard provides quality products backed by a dedicated team committed to providing the very best in customer service.
We offer experienced technical backup, comprehensive sales, administrative customer support and product commissioning. We also offer preventative maintenence contracts.

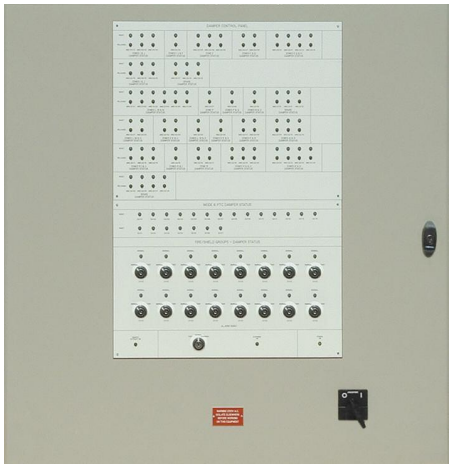
Enclosure Specifications

Standard enclosure sizes and weights are dependent on the number of networks and digital input/output devises required.

Enclosure Size (mm) W x H x D	Max Load (Watts)
500 x 500 x 210	500
800 x 800 x 210	500
800 x 1000 x 300	500
800 x 1200 x 300	500

Colour	RAL 7035
Hinged	Left
230 Volt Supply	Top entry right hand side
Network Cable	Top entry left hand side
I/O Cables	Top entry
Protection	IP 20 (230 Volt terminals shrouded)
Max ambient temperature	30 °C (Panel must be in a ventilated environment)

Safegard Electro Mechanical Bespoke - SEMB



Smoke and Fire Damper Hard Wired Control Panel
Automatic damper operation utilising relay logic and LED indication of damper status.

Features

Customised central Control Panel.

Individual, or collectively controlled and continually monitored.

Wall mounted enclosure to IP55.

Custom Engraved Traffolyte fascia.

LED indication of damper status.

Zonal inputs.

Door interlocking isolator.

Miniature circuit breaker protection.

Options

Lockable glazed door.

Special paint finish to BS standard colour reference numbers.

Flush mounting flanges.

Latching push buttons.

Fireman's override key switches.

Test Switch.

Lamp Test.

Audible alarm with mute facility.

B.M.S. common fault relay interface.

B.M.S. output.

Delay timers.

Battery backup.

Specialist Panels available

Fan Control Panel.

Fireman's control panel.

Mimic (Repeater) Panel

Fire damper monitor (Indication) panel.

Note: SEMB is recommended for installations of up to 30 dampers.

Safegard Systems

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