



OPV control system



Colt OPV is an intelligent electronic control system which enables the integration of any smoke control components into an addressable smoke control system.

Whilst it is primarily intended for fire safety applications, it may be used to control all manner of natural ventilators, dampers and fans in much the same way as a BMS.

System components

(1) OPV Heart Module



The OPV Heart Module contains the power supply and intelligence of the overall OPV control system.

The module connects to the user interfaces such as the Display Panel, Display Extension Panel and Firefighter's Override Panel across an RS 485 network. It is a central input and output signalling point for any fire alarms or BMS connections. The Heart Module uses an Apollo network to communicate to various field devices. These may include input/output (CSIO) devices, smoke detectors, manual control points or temperature sensors.

The OPV Heart Module can accommodate up to 12 digital inputs and 4 outputs.

Each device can be integrated into the network to implement the cause and effect of the system, which is programmed to suit the needs of the building.

(2) OPV Expansion Module

This is an extended I/O for the Heart Module if there are more than 12 digital inputs or 4 outputs required.

(3) OPV Display Panel



The Colt Smoke Control Display Panel is the user interface for the Colt OPV system. This panel provides fire override of all zones, fire reset, individual device control, status and fault indication of devices connected to the OPV Heart Module via an Apollo network. The panel has 12 zone indicators which show zone status. Additional information can be accessed via the LCD screen.

(4) OPV Display Extension Panel



The optional OPV Display Extension Panel provides an additional 12 zone indicators. For instance the panel can be programmed and labelled to indicate status of any network device connected to the Apollo network.

(5) OPV Firefighter's Override Panel



The optional Firefighter's Override Panel (FOP) provides an additional point of override facility for the OPV system. Each zone has its own override button that can activate or disable a zone. Each panel can control equipment in up to 12 zones.

	Number of zones				
	1-12	13-24	25-36	37-48	49-60
(1) Heart Module	1	1	1	1	1
(2) Expansion Module		1	2	3	4
(3) Display Panel (note 1)	1	1	1	1	1
(4) Display Extension Panel (note 2)		1	2	3	4
(5) Firefighter's Override Panel (FOP) (note 2)		1	2	3	4

This table shows how the number of zones impacts on the quantities of each item of equipment needed.

Note 1 - All zones can be overridden from the Display Panel.

Note 2 - The Display Extension Panel will provide indication only.

The FOP provides display and control. Either the Display Extension Panel or the FOP must be used in the quantities shown.

Features and benefits

Proven performance

As life safety equipment, all OPV components meet the most stringent manufacturing and test procedures. Its communication network uses the proven and robust Apollo® protocols.

Conforming to the latest standards

OPV is CE marked for compliance with the Low Voltage Directive and the Electro-magnetic Compatibility Directive.

Flexible

Each OPV system can control up to 126 addressable units per spur with a maximum of 4 spurs. There is a maximum of 10 additional remote fire-fighter's override panels (FOPs), each controlling a maximum of 12 control zones.

Addressable

Addressability provides flexible control. Each addressable unit can be controlled individually and as part of the specified automatic control system. The control software is configured to suit the automatic scheme requirements and should these change, it is a simple matter of reprogramming the software accordingly.

Ventilation equipment is generally configured into operational zones. However individual control can be provided to meet specific building requirements if needed, although additional I/O devices may be required.

Complete control

Besides the ability to re-configure the system in response to alterations in the scheme, the user can operate the system manually at the Display Panel using the navigation key pad and can amend the daily parameters such as the temperature settings and operating times.

Battery backed-up system

OPV offers two independent power sources to operate ventilators, as prescribed by EN 12101-10. During normal operation the network is powered from the mains, which also charges the integrated battery back-up module. The control system monitors the health of the communications network.

The system is so designed that if there is a power failure and no fire signal, all ventilators controlled by the system maintain their current status while the

battery supply is healthy. If a fire signal is received during this period, the system will respond as designed.

The minimum time period is determined at the design stage and varies between 30 and 72 hours depending on the level of support available on the premises.

Monitoring and diagnostics

Software and hardware watchdogs detect faults in the system and then act upon these in a logical controlled fashion. These actions extend from merely flagging up an alarm to putting the system into failsafe mode, depending on their severity and the type of system provided. Faults are recorded and can be viewed/cleared at the Display Panel, and they can also be outputted as a signal to a BMS, for example.

Low maintenance

OPV systems are very low in maintenance requirements.

Minimal power requirements

The OPV system only requires a 230 V AC supply and imposes a 1A load. A 3A fuse is recommended.



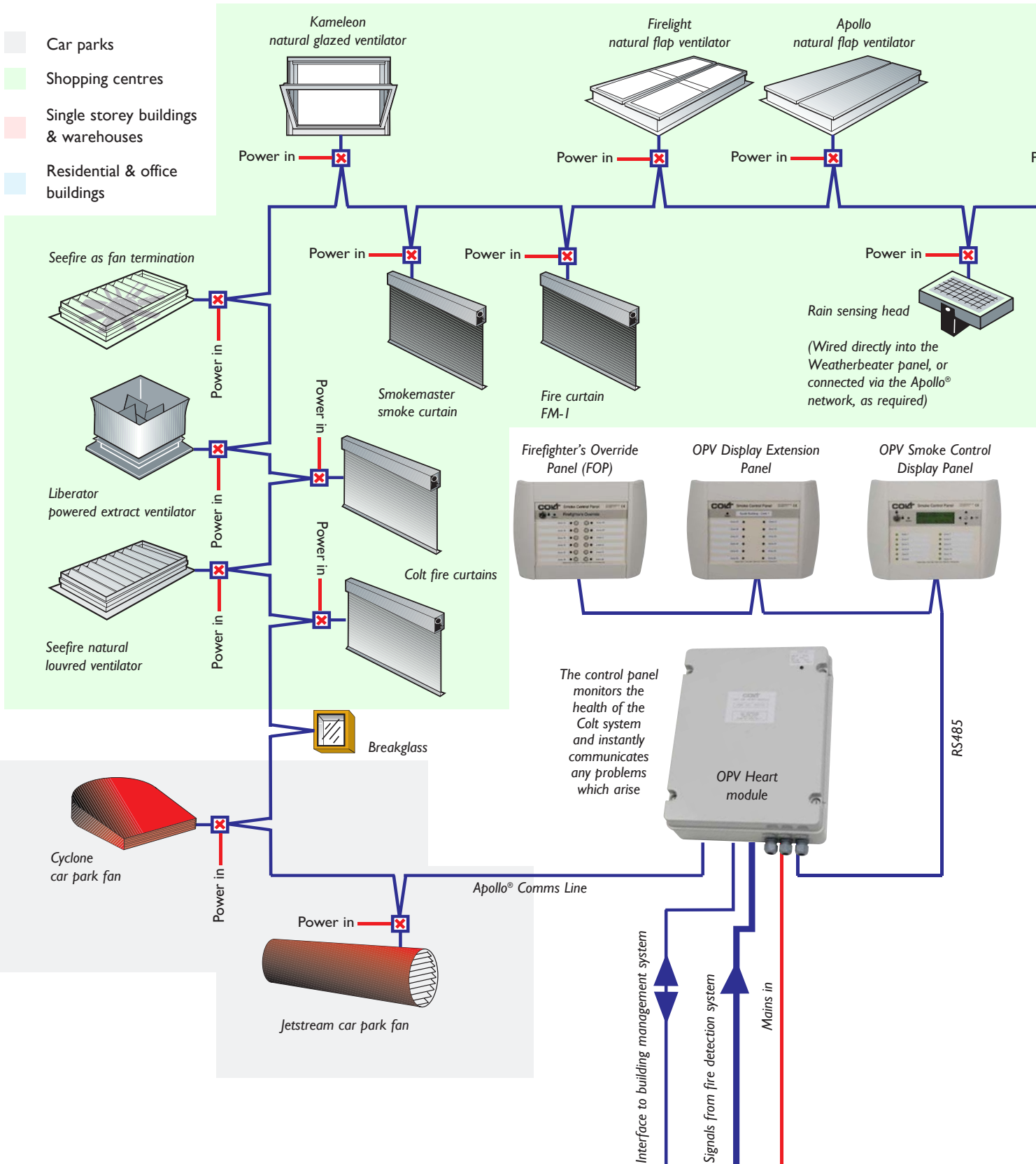
The OPV Display Panel is unobtrusive



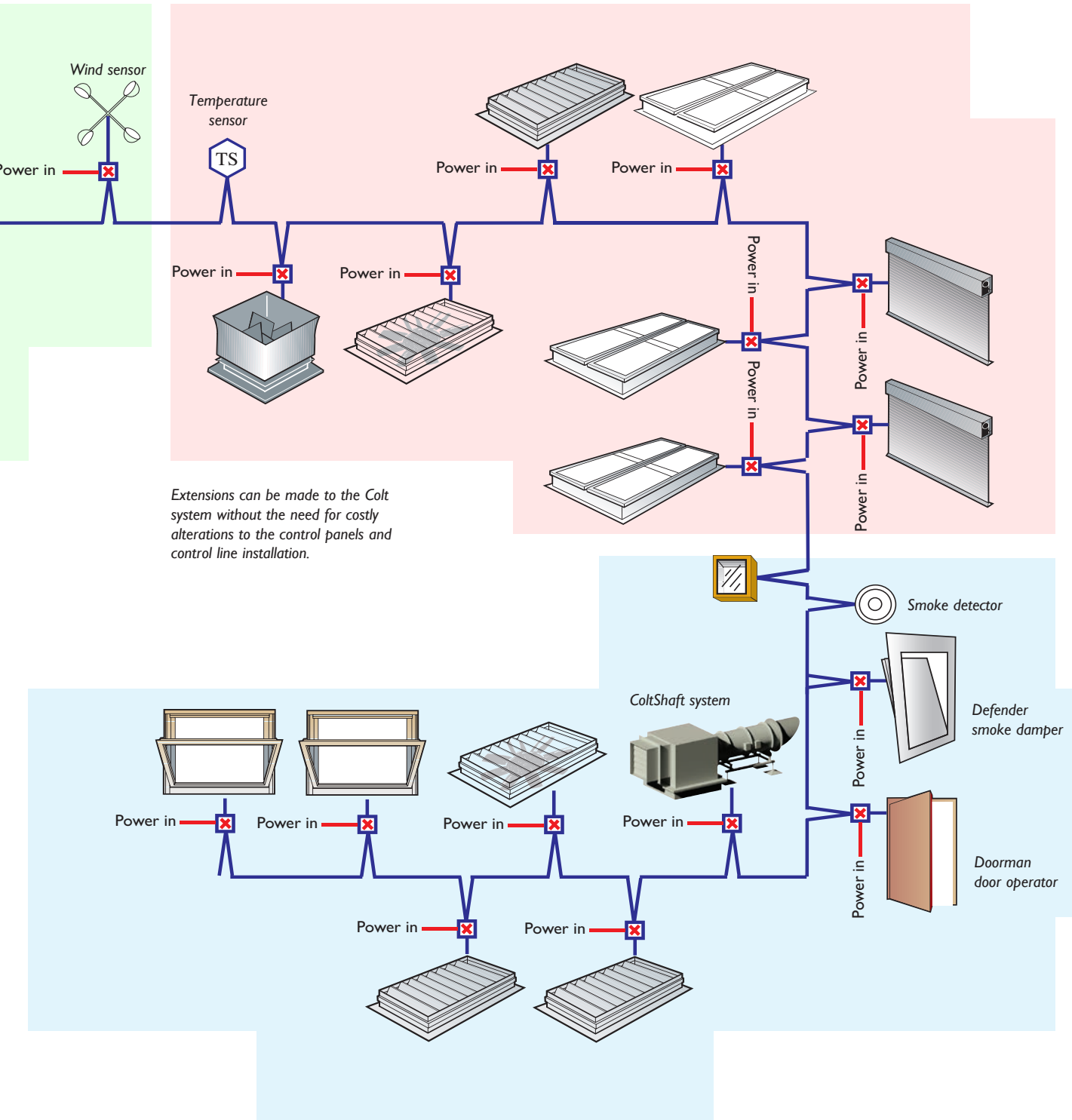
A typical Fan Control Panel with which the OPV system interfaces

Generic schematic of OPV systems

- Car parks
- Shopping centres
- Single storey buildings & warehouses
- Residential & office buildings



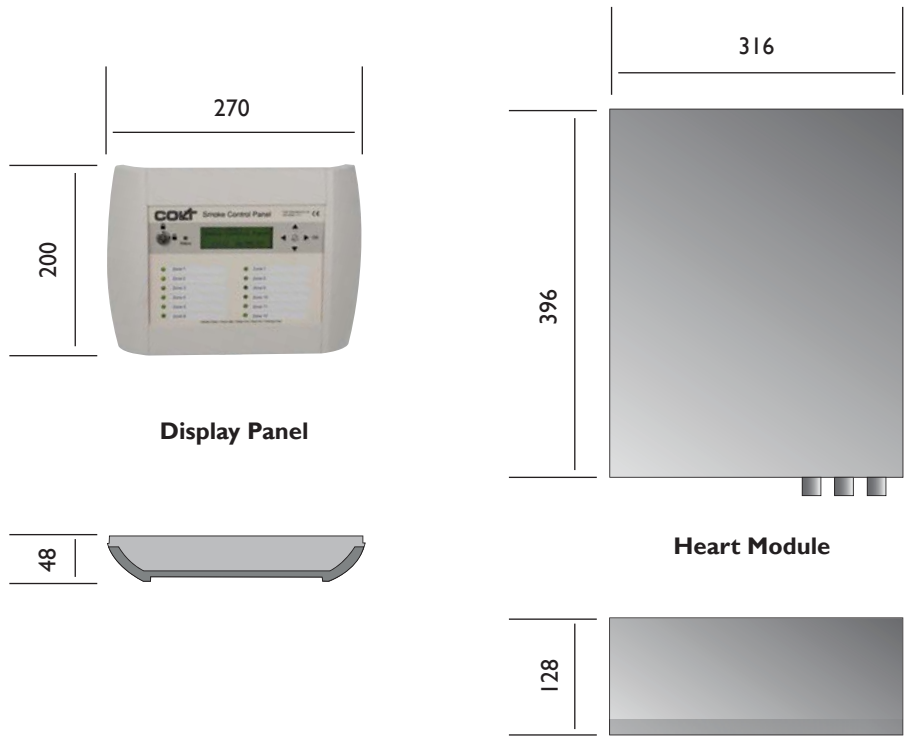
Generic schematic of OPV systems



Dimensions

**Display Panel
+
Heart Module**

- 126 addresses (per card)
- 12 displays
- Menu override
- 12 Inputs (VFCs)
- 4 Outputs (VFCs)
- No Weatherbeater module



Specification

Product Reference:
OPV Control System

Description
Addressable intelligent electronic controller of smoke control systems.

Uses processor control technology for control of compatible natural and powered ventilators, dampers and smoke and fire curtains using I/O interfaces (CSIO).

The OPV system consists of the following:

- (1) A Heart Module that interfaces with the fire alarm system, the BMS, the Display Panel and Expansion Module. The Heart Module controls the overall OPV control system and is linked to all components.

The Heart Module is programmed via a USB link. It is re-programmable, and can accommodate future revisions or additional control zones.

Field devices are controlled via an Apollo® network. Single phase 230VAC, 50Hz electrical power. Continuous monitoring of power and communications.

- (2) A Display Panel with LCDs and navigation buttons for overall control and zone indication. Also includes system diagnostics and individual control of zones and devices.
- (3) Additional zone indication via optional Display Extension Panels.
- (4) Additional zone indication and control via optional Fire-Fighter's Override Panels.



Why choose Colt?

- We are able to provide all the equipment necessary for smoke control of multi-storey buildings: OVs, AOVs, shaft systems, access hatches, smoke dampers, smoke door and window actuators, smoke detectors, break glass switches, and manual and automatic controls.
- We can provide a complete package of scheme design, manufacture, installation, commissioning and maintenance, with the advantage that all the components are contained within one package of works.
- Every type of building presents different dynamics and requirements, and when you work with Colt, you can count on full peace of mind in every phase of the project and for the full life cycle of your system because our experts understand the engineering and architectural challenges of different buildings.

You can count on Colt to:

- Look at the complete picture: we know how a building works and have extensive in-house expertise in a broad range of technologies.
- Design the most cost-effective, no-nonsense solution engineered to meet your needs and any prevailing regulations, relying on our in-house technical resources such as CAD and CFD.
- Advise on the prevailing regulations and standards. We have the expertise to deliver smoke control systems that satisfy both the architectural demands and the safety regulations. Customise our products to fit the exact requirements of your project and, where necessary, have them specially tested at our R&D facility.
- Supply our high quality products, manufactured under quality standards and third party tested to rigorous standards. Install and commission your system: our experienced, professional project management teams will take care of everything.
- Maintain and service your system to ensure it keeps working at its most efficient throughout its life cycle.
- Train and advise through all phases of the process. We offer free technical seminars.

Service and maintenance

Our service team offers mechanical and electrical, preventative and reactive service, maintenance and repair for a wide variety of building services equipment, whether or not this has been supplied by Colt.

We provide a 24 hour, 365 day emergency cover as standard.

Maintenance of a smoke control system is essential. Regular maintenance protects your investment and brings peace of mind that the system will operate effectively in an emergency.

BS 7346-8 and BS 9999 recommend that smoke control systems should be serviced at least once a year and tested weekly.



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