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BLE Smoke & Fire Curtains

SPECIFICATION - Model SC1 Smoke Curtain (European Standards)

OVERVIEW

The BLE Model SC1 active smoke curtain is manufactured from the X32K woven glass fibre fabric coated on each side with a micronised aluminium polymer coating. The complete curtain assembly is rated at 600°C for a period of up to 120 minutes and 1000°C for up to 60 minutes.

The X32K fabric is wound onto a tubular steel roller assembly that incorporates a 24V permanent magnet motor. The roller assembly is fitted inside a galvanised steel headbox that can be fixed directly to the structure of the building. A standard bottom bar consisting of twin 20mm x 20mm x 3mm steel angles, with a white polycarbonate extrusion cover, is used to ensure the curtain deploys under gravity in a controlled manner (Gravity Fail Safe). Heavier bottom bars may be required for some curtains to ensure correct deployment or to reduce deflection of the curtain due to variations in air pressure.

Optional 100mm deep x 50mm wide steel side guides can be specified if required to limit the deflection of the curtain at its edge and minimise smoke leakage. The curtain headbox, bottom bar and side guides (if required) can be powder coated in any RAL colour as an optional extra, or can be supplied in stainless steel.

PRODUCT PERFORMANCE

The complete SC1 Smoke Curtain system has been tested in both single and multiple overlapping roller configurations to EN12101 - Smoke and heat control systems – Part 1 – Specification for Smoke Barriers, and fully complies with Directive 89/106/EEC of the Council of European Communities with EC Certificate of Conformity number 1121-CPD-FA001. The SC1 Smoke Curtain also has a third party Certificate of Approval from Warrington Certification Ltd. Certifire Certificate Number CF5030. The X32K fabric has a class 1 surface spread of flame rating when tested to BS 476: Part 7 and a fire propagation index I =4.8 when tested to BS 476: Part 6. These tests demonstrate compliance with the requirements for Class 0, as defined in Approved Document B of the Building Regulations in England.

Table 1 – Designations, size limitations & Fire Resistance Periods for SC1 Smoke Curtains

Designation	Single Roller	Multi Roller	Max Width (M)	Max Drop (M)	Classification	Test Standard	Certificate / Reports
Active Barrier SC1-D120 / DH60	Yes	Yes	Unlimited	10.0	D120 / DH60	BSEN 12101	Certifire CF5030 EC CoC 112-CPD-FA0001

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HEADBOX SIZING

Specification - EU SC1 Smoke Curtain - Version 1 (0519)

The size of the curtain roller housing, or headbox, depends on the curtain drop and width.
Table 2 gives details of the full range of headbox sizes required for the SC1 smoke curtain.

Table 2 – SC1 Smoke Curtain, Headbox sizing guide

Curtain Drop	Single Roller (Type A)		Side by Side Multi Roller (Type B)		Over / Under Multi Roller (Type C)	
	Roller Width		Roller Width		Roller Width	
	Up to 2.5m	2.5m - 5m	Up to 2.5m	2.5m - 5m	Up to 2.5m	2.5m - 5m
Up to 1.5m	150 x 125mm	150 x 150mm	250 x 125mm	250 x 150mm	150 x 250mm	150 x 250mm
1.5m - 3.0m	150 x 150mm	180 x 180mm	250 x 150mm	310 x 180mm	150 x 250mm	180 x 310mm
3.0m - 6.0m	180 x 180mm	210 x 210mm	310 x 180mm	350 x 210mm	180 x 310mm	210 x 350mm
6.0m - 10.0m	210 x 210mm	230 x 230mm	350 x 210mm	390 x 230mm	210 x 350mm	230 x 390mm

CONTROL SYSTEMS

A Standard or Multi-Function Group Control Panel (GCP) is used in conjunction with Standard or Multi-Function Motor Control Circuits (MCC) to operate up to 6Nº 24V permanent magnet motors to control the deployment and retraction of the SC1 Smoke Curtains.

In normal conditions the GCP provides a 24V supply to the motors and the curtains are held in the retracted position in the headbox. When a fire alarm is activated the contact in the GCP is opened and the power is removed from the motors, releasing the curtains to deploy under gravity in a controlled manner (Gravity Fail Safe). When the fire alarm system is reset the GCP reinstates the 24v supply to the motors and the curtains are retracted to their normal position in the headbox. Current limiting switches detect when the curtain has fully retracted and the supply voltage to the motor is stepped down to a holding voltage.

In the event of a mains power failure: the 2Nº 12v 7ah back-up batteries supplied with the GCP can maintain full control of the system for up to 4-hours. If a fire alarm signal is activated during a mains power failure the Smoke Curtains will deploy in a controlled manner as normal.

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LED status Indicators – LEDs on the front of the Standard GCP display the status of the mains supply, battery charge, alarm and any fault in the CPU. The Multi-Function GCP has extra LEDs that display if a delay timer or override function is active.

Manual override – Facility to temporarily raise all the curtains connected to the GCP after deployment, for emergency egress.

Two stage descent – Programmable timer delay that deploys the curtain in two stages to allow egress before full deployment of the curtain. First stage deployment time from 0 – 20 seconds followed by a delay of up to 90 seconds before full deployment.

Delayed descent – Programmable timer delay of up to 90 seconds after the fire alarm signal is activated before full deployment of the curtain.

Delayed ascent – Programmable timer delay of up to 90 seconds after the fire alarm signal is reset before retraction of the curtain.

GCP interlinking – Enables multiple GCP's to be connected when more than 6 motors are controlled by one alarm signal, to ensure synchronisation of curtain descent and retraction.

Heat or Smoke detector – Can be used in place of, or in combination with, the main fire alarm signal (Requires a manual reset button).

AV facility – An Audio Visual Unit that activates to warn that the curtains are descending. Sounder beacons can also be used.

BMS connection – The GCP can be linked to a Building Management System to show the status of mains power, battery charge, alarm, timer delays and manual override.

Curtain released signal – Signal to the BMS to confirm that the curtain has been released.

Obstruction sensor – Gives a warning if there is an obstruction in the path of the curtain.

Table 3 – Option comparison between Group Control Panels

Feature	Standard	Multi-Function GCP
Controls up to 6 motors	Yes	Yes
2 x 12v 7ah backup batteries	Yes	Yes
Test key switch	Yes	Yes
LED status indicators	Yes	Yes
Manual override (requires push button)	No	Yes
Two stage descent facility (requires brake motor)	No	Yes
Delayed descent	No	Yes
Delayed ascent	No	Yes
GCP interlinking	No	Yes
Heat or smoke detector with manual reset button	Option	Option
AV connection facility	No	Option
Building Management System (BMS) connection	No	Option
Obstruction sensor facility	No	Option
Curtain released signal facility	No	Option

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GCP SPECIFICATION

Power Input	230Vac 50Hz
Alarm Input	Normally closed. Open on fire alarm activation. Configured to be fail safe.
Dimensions and finish	Hinged door, white painted mild steel enclosure 396mm High x 334mm Wide x 105mm Deep

MOTOR CONTROL CIRCUIT (MCC)

Controlled curtain descent – Back electromotive force (EMF) of the curtain motor ensures the controlled gravity fail safe deployment of the curtains.

45 / 90 second ascent run timer – For longer curtain drops the run timer can be set to 90 seconds to ensure the curtain retracts fully into the headbox.

Current controlled ascent – When the curtain has fully retracted the motor voltage is reduced. No limit switches are required.

127 motor control – Larger 127mm diameter rollers/motors can be used for large/heavy curtains.

Table 4 – Option comparison between Group Control Panels

Feature	Standard MCC	Multi-Function MCC
Controlled curtain descent	Yes	Yes
45 or 90 second ascent run timer	Yes	Yes
Current controlled ascent (no limit switches)	Yes	Yes
Two stage descent facility (requires brake motor)	No	Yes
Larger 127mm motor control facility	No	Yes

MCC SPECIFICATION

Input voltage	27Vac / 24Vdc
Output voltage	24Vdc
Dimensions and finish	White painted mild steel enclosure 145mm High x 250mm Wide x 50mm Deep

WARRANTY

A manufacturer's warranty is provided for a period of one year. Exclusions may apply if any element is sublet to an unauthorised party.

CONTACT

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