

## BLE Smoke & Fire Curtains

### SPECIFICATION - Model SD / FC Fire Protective Curtains (UL)

#### OVERVIEW

The BLE Model SD and Model FC active fire protective curtains are available with integrity ratings of 60, 120 and 180 minutes. The SD60 and FC60 curtains use the X32K fabric, which is manufactured with woven glass fibre, coated on each side with a micronised aluminium polymer. The SD240 and FC240 curtains use the C41000WK fabric, which is manufactured with a stainless steel wire reinforced woven fibre coated on each side with silver polyurethane. See Table 1 for fire ratings and size limitations.

The fabric is wound onto a tubular steel roller assembly, which incorporates a 24V permanent magnet roller. The roller assembly is fitted inside a galvanised steel headbox that can then be fixed directly to the structure of the building. All Model FC curtains are supplied with side guides as standard. 100mm deep x 50mm wide, which incorporate a fabric retaining mechanism to limit the deflection of the curtain under the pressure created in a fire and to minimise smoke leakage. Smaller 50mm x 50mm side guides are also available as an option. Model SD curtains can be supplied with or without side guides. When supplied with side guides Model SD curtains are identical in performance to Model FC curtains. A standard bottom bar consisting of twin 20mm x 20mm x 3mm steel angles 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. The curtain headbox, side guides and bottom bar can be powder coated in any RAL colour as an optional extra, or can be supplied in stainless steel.



#### PRODUCT PERFORMANCE

The Model SD and Model FC curtains have been extensively tested and approved by Underwriters Laboratories LLC to Standard UL10D: Fire Tests of Fire Protective Curtain Assemblies, Certificate of compliance number 20151020-R26410. Standard UL1784: Air Leakage Tests of Door Assemblies and Other Opening Protectives, Certificate of compliance number 20120808-R26410. Standard UL864: Control Units and Accessories for Fire Alarm Systems, Certificate of compliance number 20150814- S24259. The X32K and C41000WK fabrics have also been separately tested to UL723: Test for Surface Burning Characteristics of Building Materials. In addition, the Model SD60 curtain also has an ICC Evaluation Report, ESR-3322, for use in elevator hoistway doors and elevator lobbies.

SMOKE & FIRE

**Table 1 - Designations and size limitations for SD / FC series Fire Protective Curtains**

| Model                          | Single Roller | Multi Roller | Max Width (M) | Max Drop (M) | Classification  | Test Standard    | Certificate / Reports                              |
|--------------------------------|---------------|--------------|---------------|--------------|---|------------------|--|
| SD60                           | Yes           | Yes          | 18.0          | 12.0         | 60 mins fire rating   | UL 10D<br>UL1784 | 20151020-R26410<br>20120808-R26410<br>ICC-ESR-3322 |
| SD240                          | Yes           | Yes          | 18.0          | 12.0         | 120 mins fire rating in gypsum<br>180 mins fire rating in masonry | UL 10D<br>UL1784 | 20151020-R26410<br>20120808-R26410                 |
| FC60                           | Yes           | Yes          | 18.0          | 12.0         | 60 mins fire rating   | UL 10D<br>UL1784 | 20151020-R26410<br>20120808-R26410                 |
| FC240                          | Yes           | Yes          | 18.0          | 12.0         | 120 mins fire rating in gypsum<br>180 mins fire rating in masonry | UL 10D<br>UL1784 | 20151020-R26410<br>20120808-R26410                 |
| Accordion AC1 (SD240A / AC180) | Yes           | Yes          | 18.0          | 5.0          | 120 mins fire rating in gypsum<br>180 mins fire rating in masonry | UL 10D           | 20120808-R26410                                    |

**HEADBOX SIZING**

The size of the curtain roller housing or headbox, depends on the curtain drop and width. Table 2a gives details of the full range of headbox sizes for the Model SD60 and FC60 curtains. Table 2b gives details of the full range of headbox sizes for the Model SD240 and FC240 series fire protective curtains.

**Table 2a - SD60 Smoke Protective 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                       | Roller Width | Roller Width                       | Roller Width |
| Up to 1.5m   | 150 x 125mm            | 150 x 150mm  | 250 x 125mm                        | 250 x 150mm  | 150 x 250mm                        | 150 x 250mm  |
| 1.5 - 3.0m   | 150 x 150mm            | 180 x 180mm  | 250 x 150mm                        | 310 x 180mm  | 150 x 250mm                        | 180 x 310mm  |
| 3.0 - 6.0m   | 180 x 180mm            | 210 x 210mm  | 310 x 180mm                        | 350 x 210mm  | 180 x 310mm                        | 210 x 350mm  |
| 6.0 - 9.0m   | 210 x 210mm            | 230 x 230mm  | 350 x 210mm                        | 390 x 230mm  | 210 x 350mm                        | 230 x 390mm  |
| 9.0 - 12.0m  | 230 x 230mm            | 250 x 250mm  | 390 x 230mm                        | 450 x 250mm  | 230 x 390mm                        | 250 x 450mm  |

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**Table 2b – FC60 / FC240 / SD240 Fire Protective Curtain, Head box sizing guide**

|              | Single Roller (Type A) |             | Side by Side Multi Roller (Type B) |             | Over / Under Multi Roller (Type C) |             |
|--------------|------------------------|-------------|------------------------------------|-------------|------------------------------------|-------------|
|              | Roller Width           |             | Roller Width                       |             | Roller Width                       |             |
| Curtain Drop | Up to 2.5m             | 2.5 - 5m    | Up to 2.5m                         | 2.5 - 5m    | Up to 2.5m                         | 2.5 - 5m    |
| Up to 1.5m   | 150 x 125mm            | 150 x 150mm | 250 x 125mm                        | 250 x 150mm | 150 x 250mm                        | 150 x 250mm |
| 1.5 - 3.0m   | 150 x 150mm            | 180 x 180mm | 310 x 180mm                        | 310 x 180mm | 180 x 310mm                        | 180 x 310mm |
| 3.0 - 6.0m   | 180 x 180mm            | 210 x 210mm | 350 x 210mm                        | 350 x 210mm | 210 x 350mm                        | 210 x 350mm |
| 6.0 - 9.0m   | 210 x 210mm            | 230 x 230mm | 390 x 230mm                        | 390 x 230mm | 230 x 390mm                        | 230 x 390mm |
| 9.0 - 12.0m  | 230 x 230mm            | 250 x 250mm | 450 x 250mm                        | 450 x 250mm | 250 x 450mm                        | 250 x 450mm |

**CONTROL SYSTEMS**

A UL Standard Group Control Panel (GCP) is used in conjunction with UL Standard Motor Control Circuits (MCC) to operate up to 5N<sup>o</sup> 24V permanent magnet motors to control the deployment and retraction of the Curtains. In normal conditions the GCP provides a 24V supply to the motors and the curtains are held in the retracted position in the head box. 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 head box. Current limiting circuitry detects 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 2N<sup>o</sup> 12v 7ah back up batteries supplied with the GCP can maintain full control of the system for upto 4 hours. If a fire alarm signal is activated during a mains power failure curtains will deploy in a controlled manner as normal.

**GROUP CONTROL PANEL (GCP) - FEATURES & OPTIONS**

- 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

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egress before full deployment of the curtain.

**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.

Table 3 – UL Group Control Panels

| Feature   | UL GCP |
|---|--------|
| Controls up to 5 motors                           | Yes    |
| 2 x 12v 7ah backup batteries                      | Yes    |
| Test key switch                                   | Yes    |
| LED status indicators                             | Yes    |
| Manual override (requires push button)            | Yes    |
| Two stage descent facility (requires brake motor) | Yes    |
| Delayed descent                                   | Yes    |
| Delayed ascent                                    | Yes    |
| GCP interlinking                                  | Yes    |
| Heat or smoke detector with manual reset button   | Option |
| AV connection facility                            | Option |
| Building Management System (BMS) connection       | Option |
| Curtain released signal facility                  | Option |

### GCP SPECIFICATION

|                       |  |
|-----------------------|--|
| Power Input           | 120Vac 60Hz<br>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 |

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## 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.

**Individual Override Interface** - Manual override for an individual curtain on a GCP loop which contains multiple curtains. The period of time the curtain remains raised after the IOI is activated can be controlled from 0 -90 seconds.

Table 4 - Standard Motor Control Circuits

| Feature  | UL MCC |
|--|--------|
| Controlled curtain descent                                 | Yes    |
| 45 or 90 second ascent run timer                           | Yes    |
| Current controlled ascent (no limit switches)              | Yes    |
| Two stage descent facility (requires brake motor)          | Yes    |
| Individual Override Interface (IOI) (requires push button) | Option |

## 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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