U.S. SMOKE & FIRE®

SD60GS ELEVATOR SMOKE CONTAINMENT

OPERATIONAL PERFORMANCE & REQUIRED

PREVENTATIVE MAINTANENCE MANUAL

U.S. SMOKE & FIRE®

IMPORTANT

Testing Protocol for Elevator Smoke Containment systems

1. Deploy Curtain to lower limit via gravity drop
2. Retract Curtain with mains power
3. Hold curtain at headbox for 1 minute
4. Deploy curtain to lower limit, retract with override button if applicable to six feet above floor and release
5. Test complete to prove system.
6. Reinstall testing jumper at A & D interface
7. All other smoke/IR detector testing will be at fire alarm relay only for red indicator light for positive notification
8. Once all fire alarm testing complete, reinstall fire alarm closed contact only after doing a complete power down and removal of batteries

Tests is undertaken using our UL listed Group Control Panel (GCP) and Motor Control Circuit (MCC). Consistent cycling of the low voltage motors during fire alarm system may damage curtain systems. All SD series Fire Protective Curtain systems are not designed to be consistently cycled per the manufacturers guidelines.

FIRE ALARM CONTACT MUST BE VOLTAGE FREE. A READING OF 0.1 VOLTS IS NOT VOLT-FREE. BEFORE CONNECTING THE FIRE ALARM SYSTEM TO THE GROUP CONTROL PANEL INTERFACE ENSURE THAT THE FIRE ALARM CONTRACTOR HAS PROVIDED YOU A CONTACT THAT READS 0.0 VOLTS WITH THE MULTIMETER. ANY VOLTAGE HIGHER THAN 0.0 VOLTS WILL DAMAGE THE GCP PRINTED MOTHERBOARD.

PLEASE NOTE: SURGE PROTECTOR IS REQUIRED TO BE FURNISHED & INSTALLED BY OTHERS AT EACH DEDICATED CIRCUIT FOR THE GROUP CONTROL PANELS. WITHOUT THE SURGE PROTECTOR(S), ANY AND ALL WARRANTIES WILL BE VOIDED AND ANY DAMAGE TO ELECTRICAL COMPONENTS DURING COMMISSIONING AND IN THE WARRANTY PERIOD WILL BE CHARGED BACK TO THE RESPONSIBLE PARTY.

Architecture/Engineering Team
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U.S. CARE®

PREVENTATIVE MAINTENANCE SERVICE

The **U.S. CARE®** preventative maintenance service performs the following 30 point electrical and mechanical service on your U.S. Smoke & Fire curtain product annually.

1	Check all fuses	16	Check (Bldg. Mgmt. System) BMS
2	Check back-up power supply	17	Spray anti-static printed circuit board (PCB)
3	Check MCC supply in / out at GCP	18	Spray PCB Board for dust collection
4	Check MCC supply in / out at MCC	19	Test override & Test grounds
5	Check motor supply in / out at MCC out	20	Check accessible wiring terminations
6	Check line voltage supply in / out	21	Grease all contacts
7	Check transformed voltage & transformer	22	Lubricate side rails & housing check for obstruction
8	Check loop voltage for short degradation	23	Adjust curtain fabric tabs and bottom bar
9	Test brake loop (if applicable)	24	Inspect curtain fabric, push buttons, and bottom bars for damage
10	Test battery and low voltage disconnect	25	Apply fire coating as necessary
11	Check fire alarm contact closed link at fire alarm	26	Cycle curtain system for efficient and safe operation per NFPA 3 guidelines
12	Check fire alarm relay	27	Video / photograph – Curtain drop test
13	Test key switch contact to fire alarm circuit	28	Video / photograph – Curtain open
14	Check delayed reset control	29	Video / photograph – Curtain deploy
15	Check mains failure, all trouble lights & annunciator	30	Video / photograph – Curtain close

All work to be done at day hours with GCP Maintenance key.
There is no need to call out fire alarm system.

If there are any parts that will require replacement upon testing at time of visit, the technician(s) will change the component at the prices listed below for **U.S. Care®** electrical components per the preventative maintenance rates.

U.S. Care® will arrange a separate Time & Materials appointment for any service that needs to be performed outside the scope of this preventative maintenance agreement or any components that may be replaced on site.

U.S. SMOKE & FIRE
12310 Pinecrest Road, Suite 300, Reston, VA 20191, 888.917.8777 (O), 888.917.8777 (F)
Washington, DC – Boston – New York – Miami – Dallas – San Francisco

REVISION LOG for Version 2.00 OEM MANUAL

Revision No	Date	Details	Author	Passed
2.00	15/1/08	Initial Submission document for approval	CE	MB
2.01	22/02/08	Initial UL Submission Manual	CE	MB
2.02-2.10		Synchronized OEM & Technical Manual no revision between 2.02-2.10	CE	MB
2.11	05/03/08	Added Technical Specification as requested by UL. Added Terminal/Fuse details.	CE	MB
2.13	03/04/08	Added wiring capacity details to specification. Change low voltage deployment values to conform to UL. Change standby capacity to 4 hours instead of 1. Added 2Automatic Starting Generator in sec 3.1 paragraph 1 Reworded section 3.3 to say a facility is available for a override key switch	CE	CE
2.14	08/04/08	Amendments to Technical manual	CE	CE
2.15	09/04/08	Amendments to Technical manual	CE	CE

PLEASE NOTE: The manufacturer's warranty is subject to obtaining the U.S. Smoke & Fire annual preventative maintenance agreement conducted by factory-certified technicians per NFPA 3 guidelines.

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Contents

Chapter 1 : System Overview

1.1 - Description

When a SD60GS elevator smoke containment is required to deploy in an emergency situation it is probable that the mains supply to the control panel may have already failed and that the cables linking the SD60GS elevator smoke containment s to the control panel might become damaged. Under these circumstances with no power available the SD60GS elevator smoke containment will have to deploy by gravity. For this reason the SD Series system is always deployed by gravity and every time the system is tested it is a 100% confirmation of the fail safe operation of the system.

A test in which a curtain is powered down under normal test conditions are only proving that they can deploy when powered. This does not confirm an ability to fail safe.

The SD60, SD60G and SD240G are gravity fail safe fire protective automatic SD60GS elevator smoke containment systems utilizing the latest in electronic technology. The system meets the requirements of both BS 7346 : Part 3 ; 1990 and EN 12101-1 : 2002. All SD60GS elevator smoke containment systems are manufactured and installed in accordance with our BS EN ISO 9001 certification.

1.2 - Operation

Under normal conditions the curtain is retracted in the head box and is held in position by the electronics contained within a remote enclosure mounted on the motor end of the box. The bottom bar will be resting against the under side of the box or below the box if a stopping bar is installed, the stopping bar will then rest against the box.

In the event of a fire condition or operation of the test key switch the group control panel removes the power to the curtain motors. The curtain descends in a controlled manner under the power of gravity and stops in the lower position when all the fabric is unwound from the roller. When the signal is reset the group control panel re connects the power to the motors which will retract the curtains to the up position.

Should the mains power fail to the group control panel the supply is automatically switched to the integral standby battery. The curtain remains in the retracted position for 4 hour (fully loaded system). The curtain will remain fully operational until the battery voltage reaches 83% of nominal (19.5v), the curtains will then descend **under the power of gravity** to the operational position. Once the battery voltage reaches 80% of nominal voltage 19.2v the System will automatically be disconnect the standby batteries to prevent deep discharge of the standby batteries.

The SD Series systems have a number of built-in options which can be activated by simply adjusting PCB mounted switches on the main circuit board. The standard features are:-

- Delay Reset, Delays the retraction of the curtains after a fire or a manual test sequence.
- Delay Drop, Delays the deployment of the curtains if the panel goes into a fire or manual test sequence.
- Two Stage Decent, allows the panel to stop the decent of the curtains after a pre-determined period to provide egress from a building. The curtains are held in 1 stage position for a second pre-determined time adjusted by a second timer switch.
- Manual Override input, that allows the end user to manually override the deployment of the curtains.

1.3 - Manufacture

All our manufacturing processes and Quality Control procedures meet the full requirements of BS EN ISO 9001:1994 and all fire protective automatic SD60GS elevator smoke containment products are designed and manufactured in full compliance with the appropriate US, BS, UK, European and UL/ULC regulations.

1.4 - Fabric

The fabric used in the manufacture of our SD60 and SD60G curtains is a micronised aluminum polymer coated glass cloth with a nominal weight of 420 g/m², this fabric is tested to withstand 1800 ºF after 1 hour. The fabric used in the manufacture of our SD240G curtain is a micronised aluminum polymer coated glass cloth interwoven with steel thread with a nominal weight of 550 g/m², this fabric is tested to withstand 1800 ºF after 3 hours. All curtains are sewn together using stainless steel thread.

1.5 - Certification

BS 7346 : Part 3 : 1990	**WFRC No. C82984**	To test an automatic SD60GS elevator smoke containment to the test methods described in Clauses 3.2.3 and 4.3 "Reliability of automatic SD60GS elevator smoke containment of BS 7346:Part 3: 1990 Components for smoke and
BS 7346 : Part 3 : 1990	**WFRC No. 121880**	Fire/heat test generally in accordance with BS 7346: Part 3: 1990, clause 4.1, on a fabric SD60GS elevator smoke containment .
BS 7346 : Part 3 : 1990	**WFRC No. 103023**	To test an automatic SD60GS elevator smoke containment to the test methods described in Clause 4.2 "Deflection" and Clause 3.2.3 of BS 7346: Part 3: 1990 "Components for smoke and heat control systems, specification for SD60GS
BS 7346 : Part 3 : 1990	**WFRC No. 103547**	Appraisal of the performance of various sizes of automatic SD60GS elevator smoke containment s with respect to their ability to comply with the requirements for "Rate of Fall" Clause 3.2.3, and "Deflection", Clause
BS 7346 : Part 3 : 1990	**WFRC No. 100909**	To test an automatic SD60GS elevator smoke containment to the methods described in Clause 4.2, "Deflection", of BS 7346: Part 3: 1990 "Components for smoke and heat control systems, specification for SD60GS elevator

BS 476 : Part 6 : 1989	**WFRC No. 72503**	To determine the fire propagation index of specimens of a product when they are tested in accordance with BS 476: Part 6: 1989 "Fire tests on building materials and structures, method of test for fire propagation for products"
BS 476: Part 22 : 1987	**WFRC No. 121878**	Fire Resistance Test in Accordance with clause 8 of BS 476: Part 22: 1987 on an Asymmetrical Uninsulated Drop Curtain.
Pr EN 12101-1	**903 559 000/Re/Ei**	Testing of a SD60GS elevator smoke containment according to prEN 12101-1 (Feb. 2002) for temperature/time resistance, operational safety and smoke
UL 10 C	**R21493/03CA24721**	In accordance with the 9th Edition of the Standard for Fire Tests of Door Assemblies, UL 10B and the 6th Edition of the standard for Fire Dampers, UL 555.
UL 864 May 2007 edition		
ULC-S527-99 June 1999 edition		

1.6 – Standard Features

- Gravity fail safe operation.
- Current limiting device incorporated, motor limit switches are not required.
- Synchronized motor control circuitry, variable speed control is not required.
- Dynamic braking controlled speed of descent, separate brake units are not required.
- 24 v operation.
- Control panels can control up to 5 curtain rollers.
- Battery low voltage deployment.
- Standby battery deep discharge protection.
- Manual Override.
- Curtain Delay Drop.
- Curtain Delay Reset.
- Two Stage Decent curtain control

1.7 - Group Control Panel: Controls And Indicators

LED Indication:

MAINS ON (green)	**ON** – Mains Supply is above 85% of nominal **OFF** – Mains Supply is below 80% of nominal
CHARGE (yellow)	**ON** – Battery connected and charge circuit working. **FLASHING** – Battery charge fault or battery disconnected.
FIRE (red)	**ON** – Fire loop Broken. **FLASHING** – Manual Test in operation/2nd Stage of two stage decent in operation or Delay Drop timer in operation. **OFF** – Fire loop closed.
DELAY RESET (blue)	**FLASHING** – Delay reset timer in operation
OVERRIDE (white)	**FLASHING** – Override link closed.

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CPU FAULT (RED)	**FLASHES IF MAIN CPU FAILS**

Manual Test Key Switch
The key switch on the panel front has 2 positions:

1. **Normal:** The curtains will be retracted into the normal operational position. The key can be removed from the switch.
2. **Test:** The curtains connected to the Group Control Panel & all subsequent curtains will descend. The key can not be removed.

1.8 - Electrical Requirements

Group Control Panel

Mains Supply : 120v 60Hz Mains supply required at each panel position.

Fire Alarm Interface : Pair of clean contacts per smoke zone. GCP's can be interlinked. Should a zone of curtains require to be activated by more than 1 smoke zone the fire alarm contacts can be wired in series?

Motors: 24v AC/DC supply from GCP. A low voltage cable wired in a ring to reduce voltage drop and fault conditions. The maximum voltage drop should not exceed 1.75v

1.9 - Components

Group Control Panel: **Stock Code: SD3/GCP** **DRG. No. 2313/020/A** **DRG. No. 2313/802/A**	The Group Control Panel can support up to 5 SD Series SD60GS elevator smoke containment motors. In normal operation the GCP provides a constant 24v AC supply to the rollers under it's control. Should a fire condition arise or the test key is operated the GCP removes the 24v and the curtains descend under the
Battery: **Stock Code: CE033** **DRG. No. 2313/802/A**	2 no. 12 v 7 Ah batteries are installed in each GCP. The battery allows full operation of the system in the event of a mains failure.
Motor: **Stock Code: SD3/Motor** **DRG. No. 2313/000/A**	The SD Series motor assembly is responsible for driving and then stopping the curtain in the normal operational position via a current limiting circuit and providing a controlled speed of descent via back EMF generation.
Motor Control Circuit: **Stock Code: SD3/Motor Relay** **DRG. No. 2313/802/A**	The control circuitry for the motor is housed in a remote enclosure. The enclosure should be mounted onto the motor end of the curtain head box.
Head Box: **DRG. NO. 2313/019** **DRG. NO. 2313/021**	The head box is manufactured from 1.2 mm galvanised steel. Single roller systems will have a 150 x 150 mm section and multiple rollers will have a 250 x 150 mm section. Curtains with longer drops shall have dimensions as detailed in section 1.11.
Roller: **DRG. No. 2313/000/A**	Housed in the curtain head box the 70 mm 2, 1.2 mm thick octagonal roller supports the curtain fabric and bottom bar.

Shaft Assembly: **Stock Code: SD3/Shaft** **DRG. No. 2313/000A**	The shaft assembly provides a support at the opposite end of the roller as the motor.

Brackets: **Stock Code: DBRPEB** **DRG. No. 2313/000A**	Fixed to the head box endplates/roller support plates the brackets secure the rollers in place using a split pin fixing.
Fabric: **Stock Code: C4100WK**	180 min. rated at 1000° C. Glass cloth fabric with a micronized aluminum polymer coated to both sides, tested to BS 476 Parts 6, 7, 20 & 22.
Bottom Bar: **Stock Code: DBRPEB**	The lower edge of the curtains will incorporate a twin inverted aluminium angle which acts as a weight bar to enable the curtain to unwind upon receipt of a signal from the fire alarm panel and also helps to stabilise the curtains. A polycarbonate extrusion will be fitted to the angle for aesthetic purposes and to provide a stop against the underside of the head box.

1.10 - Optional Extras

Powder Coating:	A powder coated finish to a standard RAL colour can be applied to the SD Series head box, a mild steel bottom bar can be fitted which can also be coated.
Side Guides:	Side guides are normally provided on smoke barrier or fire protective automatic SD60GS elevator smoke containment installations, however a seal is sometimes required on SD60GS elevator smoke containment s between the curtain fabric and the structure of the

1.11 - Roller Sizing Chart

Drop (M)	Curtain Width (M)										
	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
1.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5.5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	X
6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	X

The above table details the sizes of curtains available. When using a multiple roller system we recommend that 200 mm overlap should be allowed for on each roller. 400 mm may be required on long drop curtains.

1.12 - Head Box Sizing Chart (mm)

Curtain Drop	Single Rollers	Side By Side Rollers	Over & Under Rollers
Up to 3000	150 x 150	250 x 150	250 x 180
Up to 8000	180 x 180	350 x 180	350 x 230
Up To 12000	200 x 200	350 x 240	410 x 255
Up To 20000	300 x 300	490 x 300	510 x 300

Chapter 2 : Installation

2.1 - Head Box

The SD Series head box constructed from galvanised mild-steel head box which is normally supported from a framework of Unistrut channel and M10 studding, supplied by others, an example of this is shown on drawing nos. **1000/111** & **1000/110**. The unistrut frame shall be installed at 1.2 m centres.

It is imperative the head box be installed level, failure to do this may result in the curtain “travelling” when being retracted.

The head box can be mounted directly onto the building structure through fixings on the top or side of the box, the fixings shall be at 1.2 m centres.

The installer must ensure the fixings do not protrude into the head box and tear the curtain fabric.

2.2 - Roller

The roller, supplied with the fabric curtain attached will be supplied inside a protective polythene wrapping. Remove the polythene and position the roller inside the corresponding head box, the roller is supported by a bracket at each end. Once in position secure the roller at both ends using the split pins provided. See drawing no. **2313/000**.

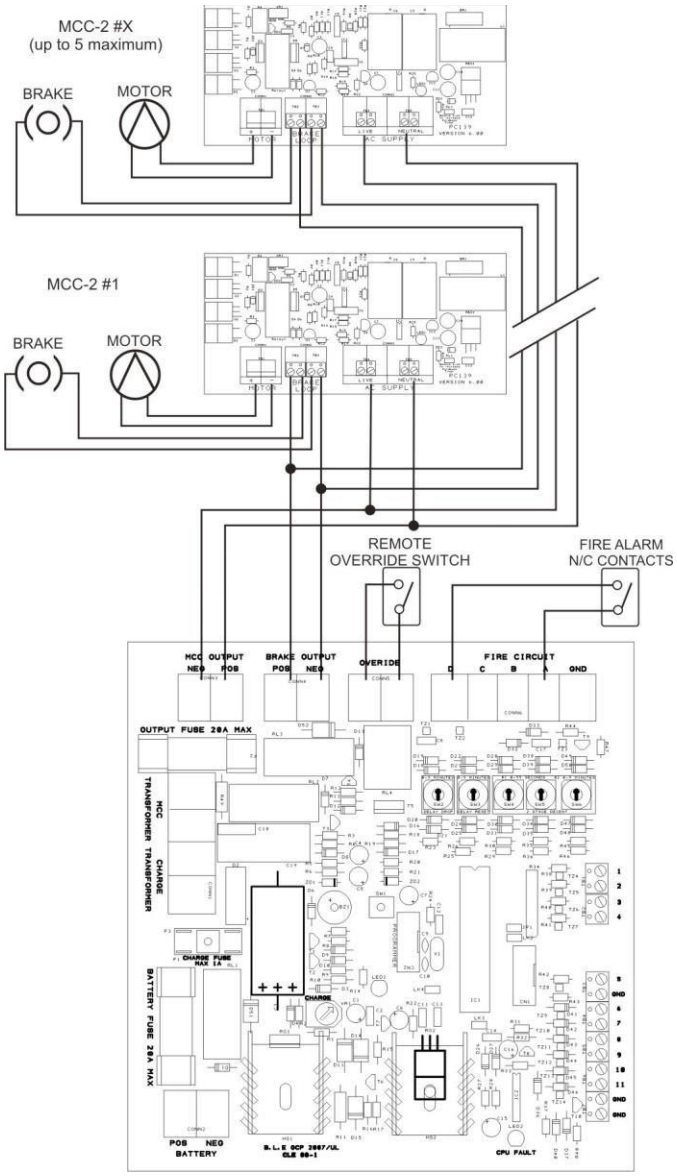
When the roller is secured the cover plate can be fitted, for ease of commissioning it is recommended that approximately 60 mm of fabric is pulled from the roller and left protruding from the head box.

Ensure that the cores of the flexible motor cable are not in contact whilst the roller is being turned . Electrical contact between the cable will cause resistance to rotation and could result in mechanical damage if forced.

2.3 - Motor Control Circuit (MCC)

The MCC is housed in a metal enclosure, this should be mounted onto the motor end of the head box. The maximum distance between the MCC and Motor should not exceed 0,5M (18”)

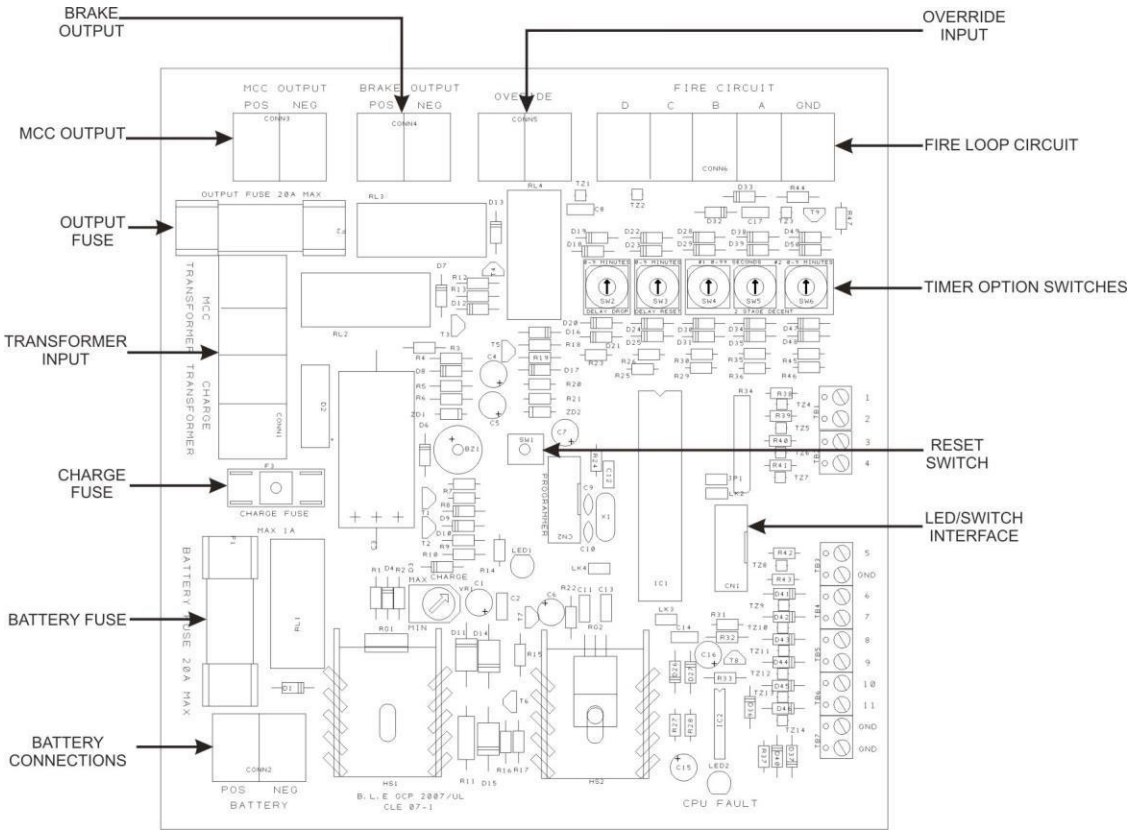
Wiring between the MCC and GCP is shown below.



2.4 - Motor Supply Loop

The 24v supply for the roller motors is fed from the group control panel, the supply loop should be wired is a “ring” configuration with a maximum voltage drop of 1.75v.

2.5 - Group Control Panel (GCP-2)



GCP-2 MAIN PCB LAYOUT

The GCP-2 power supply relies on natural convection through the case louvers to cool the electronics. For correct operation the Group Control panel **MUST** be mounted vertically allowing a free air clearance around the case of 50mm.
The GCP-2 should be mounted indoors in a dry environment free from water splashes or spillages.

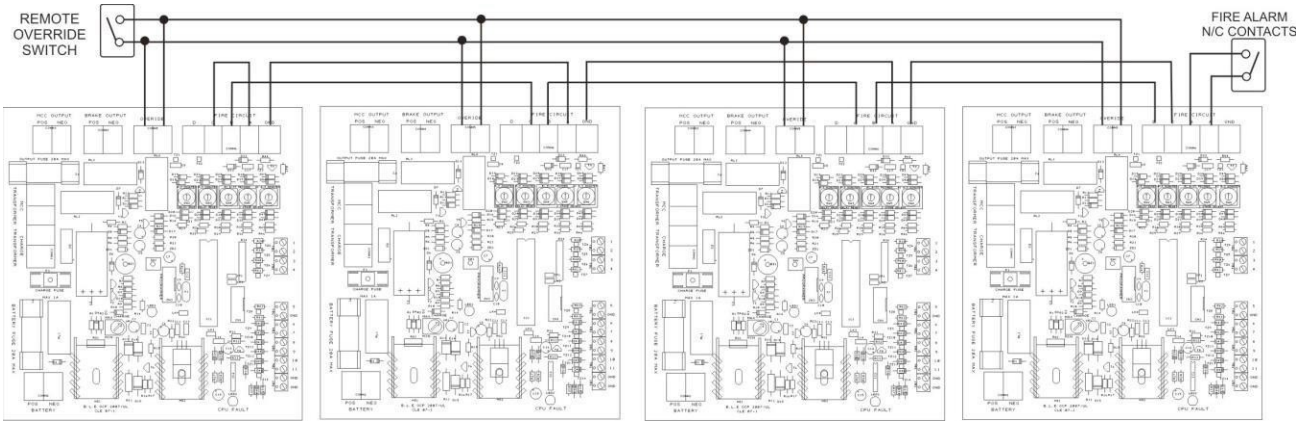
Ensure all cabling is routed into the control panel via the 20mm knockouts provided.

N.B. - The printed circuit boards contained within the Group Control panel contain static sensitive components. Suitable precautions should be taken when handling circuit boards. Upon the connection of any components **DO NOT USE** any high voltage test equipment on the circuit.

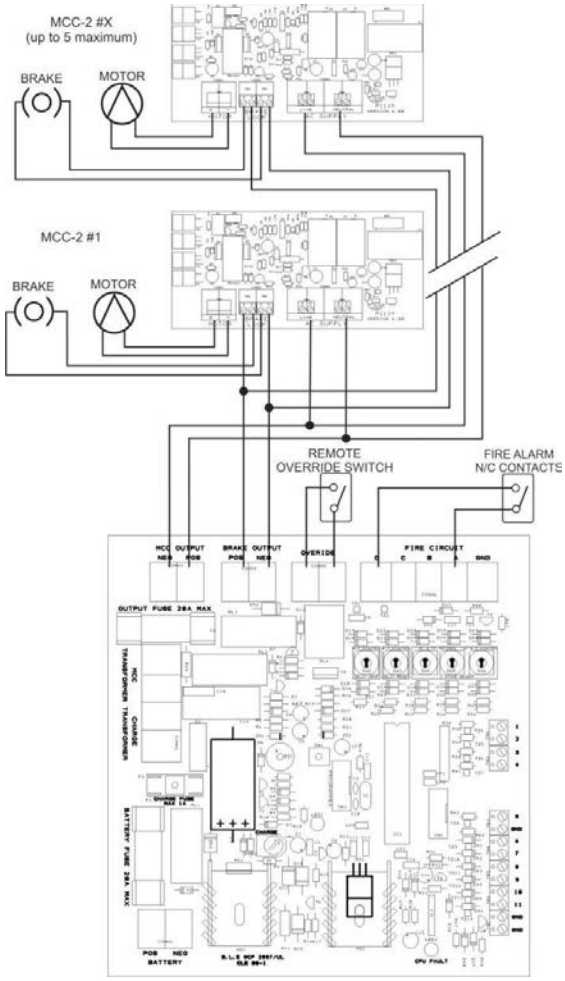
1. Mount the GCP as near as possible to the first curtain motor on the supply loop.
2. Remove the input fuse and then connect the 120v AC supply to the mains input terminals adjacent the transformer.
3. Remove the 20A output fuse do not connect the 24v supply loop.
4. If the fire alarm contact is available leave disconnected in the panel. Link out the “Fire Alarm” connection.
5. Connect the 2 no. batteries using the link provided. Ensure that you have correct polarity. The battery connections are shown on drawing no. **2313/808**.

2.6 - Linking Group Control Panels

The group control Panel can support 5 SD60GS elevator smoke containment rollers, if a smoke zone has more than 5 rollers installed group control panels can be interlinked, this is carried out as follows:



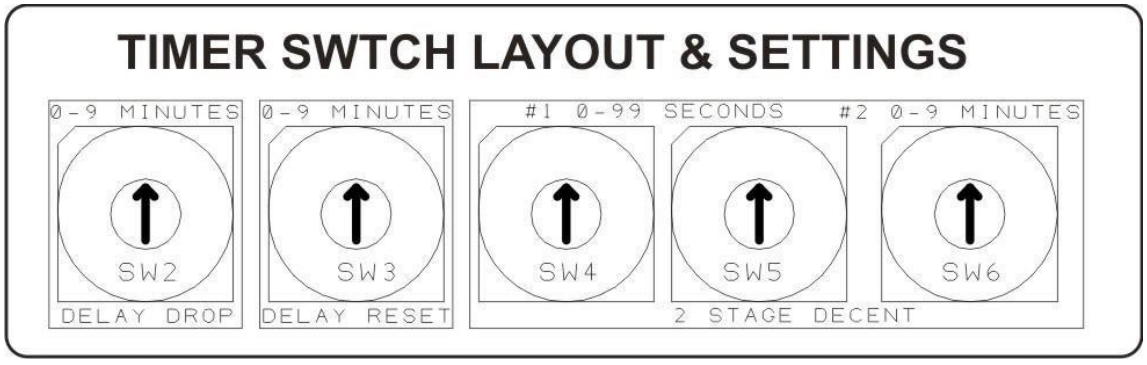
2.6 – Linking Multiple MCC on Individual GCP’s



2.7 OPTIONAL FEATURES

The GCP-2 has a number of standard features that can be activated by simply adjusting individual switches.

Detailed below is a drawing showing the Option feature switch assembly which is mounted on the main PCB.



2.7.1 DELAY DROP TIMER (SW2)

The delay drop timer delays the deployment of the curtain. The GCP panel is shipped with this option disabled (switch set to 0). The installer can set the timer from 1-9 minutes by simply using a small flat blade screw driver and adjusting SW2 to point the arrow at what timer duration they require.

2.7.2 DELAY RESET (SW3)

The delay reset timer delays the deployment of the curtain. The GCP panel is shipped with this option disabled (switch set to 0). The installer can set the timer from 1-9 minutes by simply using a small flat blade screw driver and adjusting SW2 to point the arrow at what timer duration they require.

2.7.4 TWO STAGE DECENT (SW4-SW6)

The two stage decent function has two timers. Stage one timer set how long the curtain is deployed before the curtain is stopped from descending. It is adjusted by SW4/SW5 this allows you to adjust the timer from 0 (disabled) to 99 Seconds in 1 second increments. SW4 sets the tens and SW5 set the units.
Stage two timer set the time the curtain are held in the stage one position before it is fully deployed. This timer is set by SW6 and has a range of 0 (disabled) to 9 Minutes.
If stage one is set the panel automatically sets stage 2 to 1 minute if the SW6 is set to 0.

Chapter 3: Commissioning

3.0 - Fitting The Bottom Bar

1. Pull the extent of the fabric from the head box
2. Clamp the “T” bar to the bottom of the fabric to aid stability.
3. Determine the drop height of the curtain and mark at each end.
4. Using a chalk line to mark the full width of the curtain.
5. Hold the “T” bar flat against the chalk line and fix to the fabric using screws. Ensure that the “T” bar is gripping the fabric tightly, a loose fit may result in the fabric tearing.
6. Trim of any excess material from under the “T” bar and slide on the polycarbonate cover.

Where multiple rollers are used to make up continuous curtains the curtain fabric should be overlapped by 200mm - 400mm depending on the fabric drop length. The bottom bar should be arranged to clamp both fabrics.

It is recommended that long drop curtains should be made up in this way or be fitted with two motors and motor control circuits to prevent deployment at excessive speed in the event of a motor or component failure. Do not allow the roller to deploy by gravity without the motor control panel being connected. This could result in the motor rotating at excessive speed and being damaged.

3.1 - Mains supply

A 120v 60Hz, permanent supply is required before commissioning can be under taken. It is recommended that the mains supply to the SD60GS elevator smoke containment is designated an **ESSENTIAL** supply. To meet UL 864 the mains power supply must be connected to a AUTOMATIC STARTING GENERATOR.

3.2 - Group Control Panel

1. Turn the key switch to the “Normal” position.
2. Insert the 20A Output fuse & connect the battery.
3. Insert the mains fuse, the green “Mains On” LED will illuminate. The output should now have switched over to 24v AC.
4. Turn the key switch to the “Test” position, the 24v supply should have been removed and the “Fire Alarm Status Normal” LED will be extinguished.
5. With the key switch still in the “test” position remove the 20A fuse and connect the 24v supply cables into the “24v MCC Output” connections.
6. Install the 20A fuse and turn the key switch to the “Normal” position. The curtains connected to the GCP will now retract.
7. Check that all the curtains connected to the GCP are fully retracted.
8. Connect the fire alarm contacts. Activate the fire alarm, all the curtains should descend to their lower limit position.
9. Reset the fire alarm and all the curtains will retract to their upper limit. Close and secure all Group Control panels.

The System Is Now Fully Operational

3.3 - Optional Override Key Switch

The facility to add an optional remote key switch is available to aid testing / commissioning.
The test key switch should be located so the zone under control can be viewed.
It is recommended that one key switch per fire zone is installed.

The key which can only be removed in the “Normal” position is mounted on an IP65 rated enclosure and is suitable for external use.

Chapter 4: U. S. Care® Preventative Maintenance

4.1 - Annual Maintenance - Only to be carried out by factory-certified U. S. Smoke & Fire personnel

The U.S. CARE® preventative maintenance service performs the following 30 point electrical and mechanical service on your U.S. Smoke & Fire curtain product annually.

1	Check all fuses	16	Check (Bldg. Mgmt. System) BMS
2	Check back-up power supply	17	Spray anti-static printed circuit board (PCB)
3	Check MCC supply in / out at GCP	18	Spray PCB Board for dust collection
4	Check MCC supply in / out at MCC	19	Test override & Test grounds
5	Check motor supply in / out at MCC out	20	Check accessible wiring terminations
6	Check line voltage supply in / out	21	Grease all contacts
7	Check transformed voltage & transformer	22	Lubricate side rails & housing check for obstruction
8	Check loop voltage for short degradation	23	Adjust curtain fabric tabs and bottom bar
9	Test brake loop (if applicable)	24	Inspect curtain fabric, push buttons, and bottom bars for damage
10	Test battery and low voltage disconnect	25	Apply fire coating as necessary
11	Check fire alarm contact closed link at fire alarm	26	Cycle curtain system for efficient and safe operation per NFPA 3 guidelines
12	Check fire alarm relay	27	Video / photograph – Curtain drop test
13	Test key switch contact to fire alarm circuit	28	Video / photograph – Curtain open
14	Check delayed reset control	29	Video / photograph – Curtain deploy
15	Check mains failure, all trouble lights & annunciator	30	Video / photograph – Curtain close

All work to be done at day hours with GCP Maintenance key.
There is no need to call out fire alarm system.

If there are any parts that will require replacement upon testing at time of visit, the technician(s) will change the component(s).
for U.S. Care® electrical components per the preventative maintenance rates.

4.2 Full Optional Test Procedure

To test all the features of the panel follow the following procedures.

4.2.1 Delay Reset

Adjust the delay reset switch (SW2) to position 1. Make sure all other functions switches to the 0 position. Turn the test key switch to the test mode and allow time for the curtains to fully deploy. Once the curtains are fully deployed turn the test key switch to the normal position and the curtains should remain deployed for 1 minutes after which time the curtains will automatically retract.

4.2.2 Delay Drop

Adjust the delay drop switch (SW3) to position 1. Make sure all other functions switches are set to the 0 position. Turn the test key switch to the test mode and the curtains should not deploy automatically. After 1 minute the curtains will deploy automatically. Once the curtains have fully deployed, turn the test key switch to the normal position. The curtains should automatically retract.

4.2.3 Two Stage Decent

Adjust two stage decent timer one (SW4/SW5) to 10 seconds (SW4 = 1, SW5 = 0). Set timer two switch (SW6) to position 1. Make sure all other function switches are set to position 0. Turn the test key switch to the test position. The curtains should automatically deploy. After 10 seconds the curtains stop deployment and hold in that position for 1 minutes. After 1 minute the curtains will automatically deploy. Once the curtains have fully deployed, turn the test key switch to the normal position. The curtains should automatically retract.

4.2.4 Manual Override

Turn all option switches to the 0 position. Turn the test key switch to the test position. The curtains should automatically deploy. Once the curtains are fully deployed link out the Override terminals on the main PCB and the curtains should automatically retract.

Chapter 5 : Fault Finding

5.0 - Common Fault Conditions

Fault: Automatic SD60GS elevator smoke containment s drop to the lower limit without warning and remain lowered.

Possible Cause:

•• Fault on the alarm input to any group control panel. Check fire alarm contact is not open circuit.

•• Extended mains failure. Restore the mains to the system. This is a common fault when other trades are working on the site.

•• Failure of battery back up. Check the condition of the battery and measure the voltage. During installation the mains power can be disconnected for long periods of time, excessive use of the battery back up may cause premature failure of the cells.

•• Fault on wiring from the control panel. Check wiring for continuity. Commonly caused by other trades working in ceiling voids. A broken cable will cause the curtain to descend.

•• The test key has been operated

Fault: The curtain fails to drop to the lowered position on test or receipt of an alarm or test signal.

Possible Cause:

•• Check the bottom bar or curtain fabric is not obstructed.

•• Extra weight may be required, this should be inserted into the polycarbonate extrusion.

Fault: Curtain fails to rise or stops during ascent.

Possible Cause:

•• Check the curtain has not “snagged” on any obstructions.

Fault: Curtain descends immediately when the mains power fails.

Possible Cause:

•• Failure of the battery or charger unit within the group control panel. Replace the battery as required. This fault is usually a symptom of excessive power failures.

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Chapter 6 : Drawing Register

Drawing Description	Ref. No.
SD60 Group Control Panel - Box Details	2313/020/A
SD60 SD60GS elevator smoke containment System Schematic	2313/801/D
SD60 Group Control Panel Wiring Diagram	2313/808
SD60 Group Control Panel Interconnecting GCP's	2313/809
SD60 Wiring Diagram - GCP c/w 2 Stage Descent Facility	2313/908
SD60 Motor Control Circuit	2313/810
SD60 Curtain Roller Assembly Drawing 1	2313/000/A
SD60 Curtain Roller Assembled Drawing 1	2313/000/B
Dimensions For Bottom Bar	2313/017/C
SD60 Standard Head Box Details	SD3/HBOX/3M
SD60 Standard Fixing Details - Single Box Behind Ceiling	1000/113
SD60 Standard Fixing Details - Double Box Level With Ceiling	1000/110
SD60 Standard Fixing Details - Double Box Behind Ceiling	1000/111

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CHAPTER 7.00 GCP-2/MCC-2 SPECIFICATION

GCP-2 SPECIFICATION

INPUT VOLTAGE	120v +/- 10%
CURRENT	2.0 Amps /3.75 Amps
FREQUENCY	50/60Hz
AC/DC SWITCHOVER VOLTAGE	ON < 90% OFF <85%
M.C.C OUTPUT VOLTAGE	AC 27V/DC 24V
M.C.C OUTPUT CURRENT	14Amps Max
DUTY	50%
MAXIMUM NUMBER OF MCC'S	5
BACKUP BATTERY	24v 7Ah
STANDBY TIME	4hrs Fully Loaded
LOW VOLTAGE DISCONNECT	80% of Nominal (19.2v) +/- 5%
FIRE LOOP	N/C 5v 10mA (Open Circuit fault >1M Ohms) (Closed Circuit fault <1M Ohms)
OVERRIDE	N/O 5v 5mA
DROP DELAY	N/O 5v 5mA
BRAKE OUTPUT	24v 500mA MAX
DELAY RESET TIME	0-9 Minutes (Set by Rotary Switch)
2 STAGE DECENT STAGE 1	0-99 Seconds (Set by Rotary Switch)
2 STAGE DECENT STAGE 2	0-9 Minutes (Set by Rotary Switch)
DELAY DROP	0-9 Minutes (Set by Rotary Switch)

MCC-2 SPECIFICATION

INPUT VOLTAGE	24v DC/28v AC
MAX CURRENT	2.8 Amps
STALL CURRENT	1.6A
FOLDBACK CURRENT	130-200mA
FREQUENCY	DC- 60Hz

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TERMINAL RATINGS

Terminal Name	Max Cable Size	Max Current
MCC OUTPUT	2 x 14 AWG	14A
BRAKE OUTPUT	2 x 14 AWG	0.5A
OVERRIDE	2 x 14 AWG	0.01A
FIRE CIRCUIT	2 x 14 AWG	0.01A
MAINS INPUT	1 x 16 AWG	5A

FUSE RATING

FUSE	CAPACITY	ORDER CODE
OUTPUT FUSE	20A	FS005/UL-GCP-2
BATTERY FUSE	20A	FS005/UL-GCP-2
CHARGE FUSE	1.25A	FS010/UL-GCP-2
MAINS FUSE	5.0A	FS008/UL-GCP-2