



**Smoke & Fire Curtains Ltd**  
Global Fire Control Solutions

**Volume**

**3**

# **Automatic Smoke & Fire Curtain Installation Manual**



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## Maintenance Information

### **NOTE**

In order to ensure continued compliance, reliability and integrity, active fire curtain barrier assemblies need to be inspected, serviced and tested by personnel trained and qualified in the product.

The manufacturer can provide maintenance and testing information which shall include the following:

1. Inspection and maintenance procedures:
2. Recommended procedures for operation checks:
3. Recommended check for obstructions to operation, e.g. by cosmetic finishes, lighting, shelving, sales displays or racking:
4. Recommended insulation zone area:
5. Recommended check for the effects of corrosion, etc:
6. Recommended checks for mechanical fastenings:
7. Recommended checks for power supplies and controls:
8. Recommended checks for penetrations, holes, etc:
9. Recommended checks for anything which materially affects the performance of the product.



## **Fixings and Component Information**

### **NOTE**

**On receipt of the goods from the carrier please check, before signing, acceptance of the goods.** Check all components for damage to the shape, contents or powder coating and make an immediate report if an article is missing or damaged.

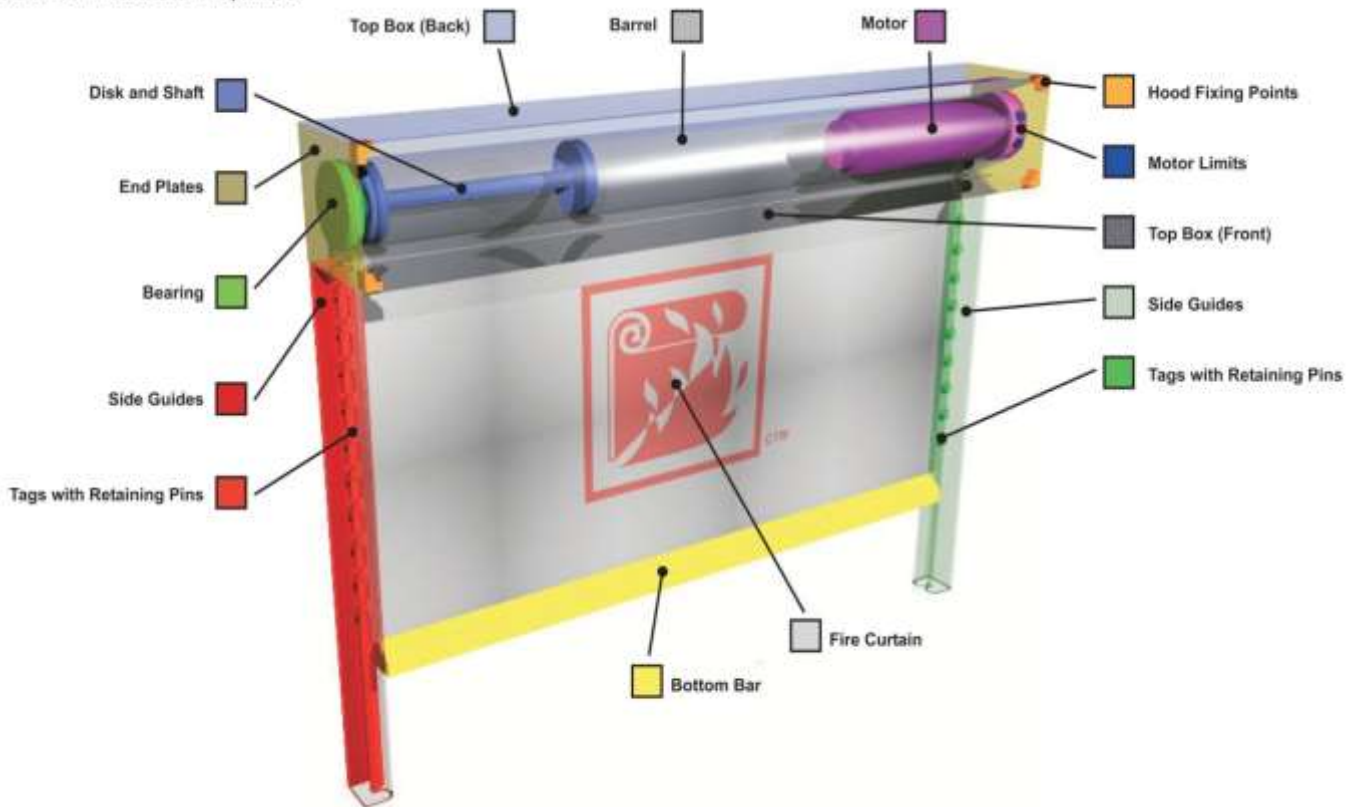
The following parts should be checked to confirm that they are correct for the duty it is intended for and also that it is undamaged and complete. Please note that the number of parts may vary according to the site situation.

1. The steel top box which is made in two parts, a back that is secured or suspended to/from the building and the front cover which finally closes the top box and creates a mouth for the curtain to descend from.
2. Two side guides that enter into the top box and continue down to the floor level or the level of the counter. Complete with two end plates.
3. The steel tubular barrel which has the curtain already attached along with one end bearing and one set of motor mountings, inclusive of split pins. The curtain should also have the side tags and locating studs complete. The motor wire from one end of the barrel is to be wired into the panel at a later stage.
4. One set of bottom rails. This can be a pair of back to back angles or a flat bar with two covers, front and back. Complete with all nuts & bolts to hold it together.
5. One control panel which comes complete with the following, a 3 pin plug on a short lead and another lead with the key switch attached. The control panel should have been tested in the assembly room and the battery terminal leads left disconnected. Connection is only done after installation. The alarm input terminals must have a temporary loop made to cancel out any alarm signal.



6. An over-ride switch may or may not be required.
7. A box or bag containing 6 mm Rawl bolts, plugs & screws if required, pop rivets and motor pins.
8. One spec sheet issued during manufacture showing dimensions of the unit.

Single Barrel Fire Curtain Explained





### *Fixings Guide*

When mounting **the top box** fixings should be placed in the upper back support hole (both sides). This is on the contacting face of the top box whether it be face fit or in fit.

Further fixing should also be placed at the centre of the top box first and then be placed at less than 1000mm intervals thereafter (divide equally).

#### **Installing the top box**

The both of end plates back support holes (two holes each) should be drilled through the top box (back side) before mounting up to the wall. Then drill through remove back top box and put in the shield anchor bolts (M6 Rawl bolts)

When mounting **the side guides** of the Fire curtain a row of single fixings should be used there should be central to the mounting face and start 100mm from the base of the guide. Further fixing should then be placed at intervals of 600mm up the length of the side guide.

Below are the fixing types which must be used with the specific materials.

- **Concrete frame**  
M6 Rawl Bolts must be used.  
M8 Rawl Bolts should be used if the depth of concrete allows or the curtain is large, i.e. over 5m in width or height
- **Brick wall**  
M6 Rawl Bolts must be used.  
M8 Rawl Bolts should be used if the depth of brick wall allows or the curtain is large i.e. over 5m in width or height
- **Wooden frame**  
60mm long wood screws is the minimum length which should be used

Please note the security of the wooden frame is integral to the security of the Fire Curtain assembly and the fixings of the wooden frame should be checked. If possible the Fire Curtain should be mounted through any wood and into the brick or concrete behind.





- **Plasterboard**

Screw fixings should be used into a minimum of 40mm thick timber batons, behind the plasterboard.

Plasterboard itself has very little strength with doubling up and using plaster board fixings.

Please note the security of the plasterboard is integral to the security of the Fire Curtain assembly and the fixings of the plasterboard should be checked. If possible the Fire Curtain should be mounted through any plasterboard and into the brick, concrete or timber batons.

- **Uni-strut shaped steel channel**

When suspending from a ceiling or other structure we recommend to use Uni-strut shaped steel channel and supported with 8mm threaded rod. Dedicated support plates used both above and below the channel to ensure secure clamping.

20mm washers and M8 nuts should also be used, possibly also with Nylock fixings.





## **Power Requirements and Connections**

During the survey or during the stage of order acceptance any technical information is freely available regarding the electrical supply requirements. Generally this is shown on the initial quotation.

Normally, the installation engineer will require a 3pin power socket to power the control panel after completion of the installation. If placed out of reach, i.e. inside a false ceiling, then this would be adequate for normal use. The important point is to ensure that the power cannot be turned off without full intention to do so.

If the contractor wishes to upgrade by hard wiring the panel to a fused spur then it will rest with the site electrician to complete this works.

The installation engineer will complete and test all of his connections from the curtain motor to the control panel but is unable to provide cable ducting or making good afterwards. Normal procedure is to follow the cable trays in the ceiling.

Should the cables need to be concealed then this facility must be provided by the contracts manager before the installation engineer arrives on site. Depending of the distance and type of cable ducting to be used we ask that all details are provided in advance of the installation date so that the right wiring is taken to site or that it is pre-wired by the site electrician.

Once the fire curtain has been installed by the installation engineer then a simulated fire test will be conducted to show the site manager that all is correct and ready for sign off. This simulated test is conducted by removing the alarm input link which simulates the relay inside the fire alarm panel being opened.

Our control panel requires a normally closed volt free contact. The fire alarm installation engineer will hard wire the fire proof cable from his normally closed volt free relay to our alarm input terminal connections.



## **Installation instructions**

### *Arriving on Site*

The delivery of parts and equipment should be pre-booked, in order to fit in with the site schedule and also to match the induction times.

After the site induction then the vehicle may be brought forward for unloading.

The parts will be off loaded at an agreed site position, which will allow the goods to be carried to the point of installation. Sometimes you may have to co-operate with other tradesmen on site so that once you have unloaded you will have to move the vehicle away so that others can unload.

Unloading of parts and fixing tools may only take 10 to 20 minutes normally. Exceptions to this procedure are when the parts are very long and / or heavy so that waiting for assistance may delay the vehicle removal.

During the survey, which is carried out by our surveyor and the client or his site manager, the position of the curtain is determined and all fixing points are agreed, along with the final positions of the control panel and the key switch.

Any works variation from the original order may be chargeable if excessive time is taken or extra parts are required to complete this additional task.

Revisits are all chargeable if the site is not ready or un-accessible on the planned day of installation. Or if the installation engineers are held up by others and forced to return on another day.

The area should be secured so that the parts and tools can be stacked as close as possible to the final fitting position, in order to safeguard the items and also to ensure a safe and productive area.



### *Installing the Fire Curtain*

Check the structure strength of the place where the curtains will be affixed to:

Measure the opening width and height and check that the curtain is going to fit. Check that there have not been any additions since the site survey,

The guides need to be drilled out to allow them to be fixed – this is easier if the front cover of the guides have been taken off. The size of the hole will depend on the size of fixing you will be using.

For example, if you are fixing to timber then a 5mm or 7mm hole will be fine, but if the side guides are to be fitted to brick then a 10mm hole will be needed to allow for anchor bolts.

Marking the fixing holes to line up with the timbers or the centre of the bricks is a good idea as the fix will be solid and you do not want any holes in the guides without a fixing. Drilling the back section of the hood should be done at this point as it will need to be fixed to the wall.



After the pre drilling of the guides and the hood the next step is to make sure that the top box is going to be level when installed.



The aim is to have the top box level without any gaps between the top box and the top of the guides; there should also be no gaps on the ground. If a floor covering is to be laid afterwards then an allowance can be made.

Both of the side guides need to be measured so that you can mark out the highest point of each on the wall. Mark out the position of each guide and of the top box

Then draw or send a laser line between these two points by using a long spirit level; this will then show which one is the highest of the two side guides and therefore needs to be lowered.

If the lengths of the guides are too long then lowering one side can be achieved by either cutting off the excess material from the bottom of the longest guide or having the longest side guide go into the top box i.e. lowering the top box over the longest guide. This can be achieved either with a grinder or a hacksaw. There is approximately 10 mm of space for it to enter into the top box without interfering with the function of the roller mechanism.



The back part of the top box is now lifted into place for fixing to the ceiling. Safe handling is important now as there is a danger that the box can fall and cause injury to the engineers or others on site. Ensure that it is completely level as this will determine the levelness for the whole fire curtain. Drill through the box and into the wall, push in the rawl bolts and tighten as deemed necessary. Other fixing may be used if appropriate.



Secure both side guides to the wall using the appropriate fixings and checking that they are both parallel with each other and vertically level. If needed the guides can be packed with shim (*a thin and often tapered or wedged piece of material used for support; adjusts for a better fit and/or provides a level surface*).

After you have installed all the metal work and checked that every part is level then it's time to put in the barrel. A suitable hole for the motor cable needs to be drilled and a gland (grommet) put in. This can be done with a hole saw or step drill. The hole will need to be in the corner of the hood nearest the motor bracket.

You will need at least two men for this part of the job. With a man at either end of the fire curtain carefully lift the barrel into place – put the bearing end in the bracket first, and then slide the motor end into the motor bracket slot – ensure the limits are facing forward and the cable goes out the back of the hood and into the gland already in place. The limit switches also need to be accessible so that you can get to them when setting the limits.

Put in the spilt pin to lock the barrel in place. Once the barrel is secured then put the motor cable through the grommet in the hood and then tighten the grommet by turning it clockwise.

Now you need to install the control panel, which must be next to its source of power. To mount the control panel to the wall remove the front from the case, inside there are four clear mounting points, one in each corner. These will need drilling out and mounted to the wall using appropriate fixings.

Have one person hold the box squarely to the wall whilst another person makes a mark for the screw plug positions. Push in the plugs and screw the panel to the wall, ensuring that it is safe and secure. It is best in a cupboard, ceiling or out of the way so that no one can walk into it accidentally

The key switch needs to be fitted with two screws in each corner. Now you can attach the motor cable to the control panel to get the fire curtain in working order (*to do this you stick the blue wire into the motor - and the brown into motor +*).

The motor cable should ideally be going through electrical conduit to protect the wire.

The polarity needs to be checked and this is tested when you take the alarm loop out – the curtain should drive down. If it drives up then the motor cables need switching around.





Now the installation is almost complete. It's time to set the limits to the floor and the ceiling. You do this by using a limit stick which is provided with each fire curtain. On the end of the barrel where the motor end is there's an upper limit and a lower limit with arrows to tell you which is the correct way along with a plus and minus sign. Turn the limit stick to the correct way so that the fire curtain is set to the exact height you require.

The bottom limit is to be set first. Drive the curtain down and if the curtain needs to be lower use the positive (+ sign). If the curtain needs to be higher then use the negative (- sign). The bottom rail needs to sit on the floor.

The top limit is next to be set and it's the same principle. If the limit needs more then positive (+ sign), if the curtain needs lowering then negative (- sign).

Once the limits have been set and the client is happy with the installation the front cover of the top box is to be put on either with rivets or self-tapping screw (*these are more pleasing to the eye*). Power and alarm loops are to be added to commission the fire curtain. This is normally done at a later stage.

**Ensure that the battery loop is still disconnected whilst making any terminal connections.**

Then you will need to connect the control panel into the mains power (using a normally closed volt free interphase) – this should be done by trained personnel. And connect the control panel to the fire alarm – this may also need to be done by trained personnel depending on the type of fire alarm being used.

*Finally check the following:*

Check that the top box is secure and the curtain is hanging into the two side guides.

Check that the curtain is spaced central to the unit so that the tab bolts run clear into each guide.

Check that the motor cable is undamaged, in its final position, made good to the control panel through glands and that the terminal connections are correct and secure.

Check that the key switch is at the correct height in a safe and accessible position, that the cables are good and finally that the keys turn without fault. Leave two of the keys in and save one just in case the other keys are misplaced. The third key must be handed over at completion.



Remember to get the installation sheet signed and sign out when leaving the site.

**WARNING**

Check if the 240v power supply is present or not. If powered up by the site electrician then it may now have live terminals inside the control panel.





## Commissioning Procedure

If you are happy that the installation is correct and safe then make the connection between the two sets of batteries.

The battery power is all that drives the motor, key switch and provides the alarm input signal. The mains power is used only to charge up the batteries.

### **WARNING**

**Do not keep running the motor up and down continually** as the battery life can be shortened if continually discharged without mains power to trickle charge them.

Also remember that the run cycle of the motor is only at a 4 minute maximum, after which time the thermal over-load switch will then trip, causing the motor to stop until the internal motor heat has reduced to a safe level.

Turn the key to the down position and the curtain should descend. If it turns in the opposite direction, disconnect the battery connection lead then swap over the brown & blue key terminals (switch wires) inside the control panel. Now turning the key to the down position will bring the curtain down and visa versa, once the battery lead has been reconnected.

The bottom rail or bottom bar now needs to be fitted onto the curtain. This is the rail that will sit up to the designated ceiling level when the fire curtain is inactive *and* will sit onto the finished floor level when activated, allowing some degree of bagginess in the actual curtain material once sitting onto the floor. This bagginess is to allow for any potential fire and air pressure to act on the curtain but not enough to force the rail off the finished floor level.

Run the curtain all the way down – then raise the curtain with one person holding the bottom of the material, whilst the curtain is being driven up. The purpose is to achieve a neat and tight wrap of the material around the barrel.

Avoid excessive strain on the curtain or this will cause damage to the curtain material, fixings or to the motor. The curtain is manufactured 400 mm to 500 mm longer than required so that there is enough material to assist in the installation



procedure. During the factory assembly process the curtain will be fitted so that it cannot run off the barrel and will retain a part wrap on the barrel when at its lowest descent.

#### **BEWARE**

It is now that you have to be extra careful not to damage the curtain with a screw driver whilst fitting the bottom rail bolts or when trimming off the excess material

Watch that you are not draining the batteries too much if mains power is unavailable.

Run up to the top and adjust the motor limits with an Allen key. Turn to make the required adjustments.

Once the top limit and the bottom limits are correct then close up the top box and secure with 4.8 mm pop rivets.

Fit the front covers onto the side guides and ensure that the gaps are open enough for the bottom rail to descend freely. If there is a tight spot then use a timber wedge to open it up, allowing it to sit for several minutes or adjust by tensioning the front plate screws.

Check that every thing is working correctly.

Seek the approval and acceptance of the site manager so that the installation can be signed off.

Explain to the fire alarm technician or to the site manager where the alarm cable has to be connected to, showing that the alarm input loop is still in place but has to be removed when the fire alarm cable is ready to be connected to our panel.

Explain that the curtain will come down when he removes the link so he must disconnect the battery loop, from one battery to another; the alarm cable can then be connected. If the curtain goes up instead of down just swap the motor cables around.

The fire alarm panel must have its relay closed before he can reconnect the batteries together. This is to stop the curtain descending.

The fire alarm technician must then set off his fire alarm panel to ensure that everything is still correct and that the curtain descends.



Once he has reset the fire alarm panel then the key switch will reset the fire curtain to its ready for action mode. Alternatively the panel can be set to auto reset so that the curtain retracts automatically.

Remove all access equipment, tools and excess materials off site.

Clean up with a brush or vacuum the carpet so that the site and work is to an approved standard. Check that the document has been signed off and that the keys have been handed over.



## **Obstruction Warnings**

During the signing off process please explain that chairs or tables etc must not be left underneath the possible path of a descending curtain as this will then stop the curtain from doing its intended duty as a fire barrier.

Take preventative action as lives are at stake.

### **NOTE**

If you think that this site may have this problem then tell our office staff so that we can write and inform the occupants of the potential hazards.