

Battery Backup DC Control System

P100FC

For Use with Gravity
Failsafe Fire Curtains



Image is for indicative
purpose only

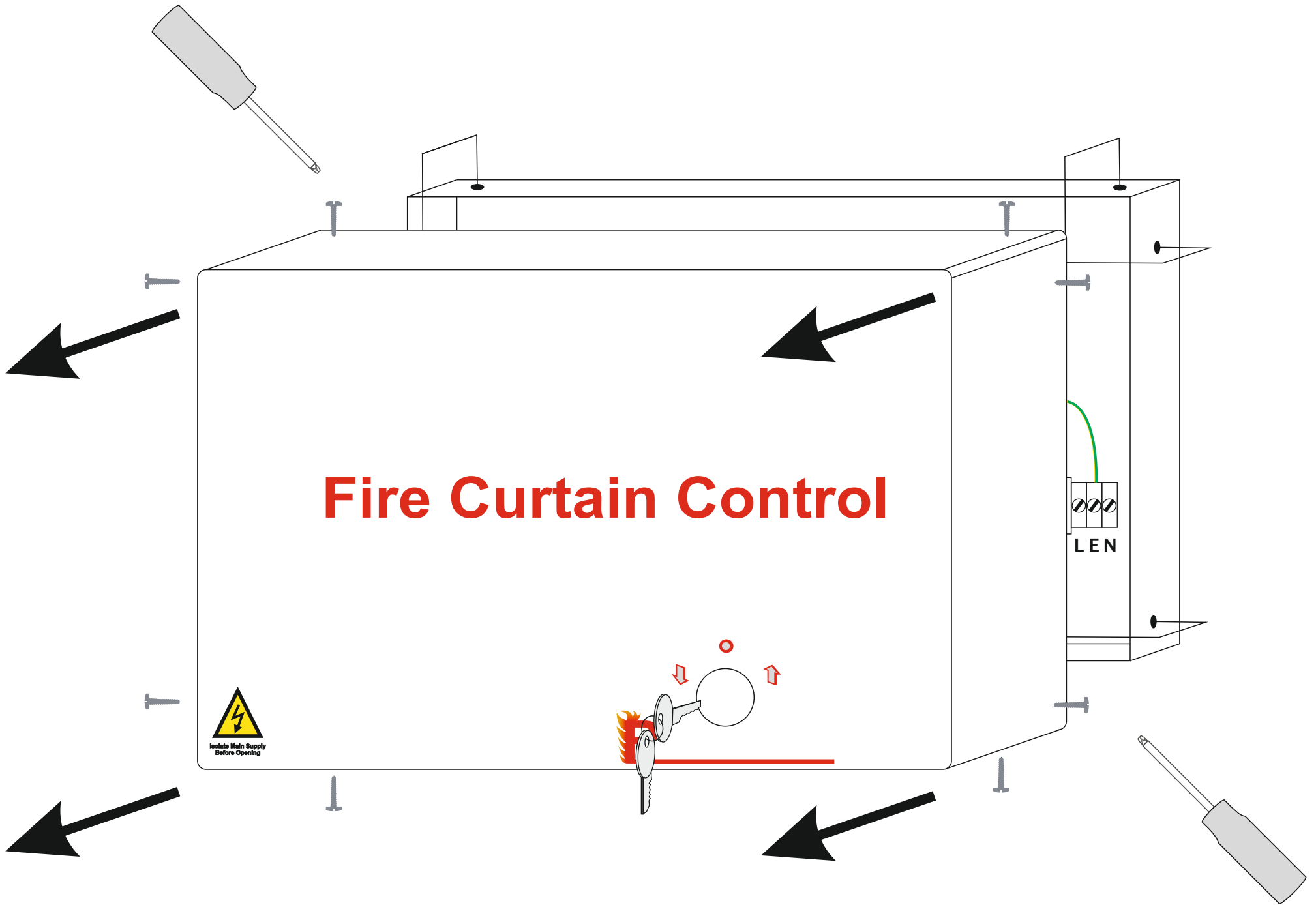
Important Information on the P100

In the event of a site having no permanent mains supply it is still possible to set up and commission the curtain. The P100 has a built in battery pack which is capable of operating the motor without mains being available. Where it is known beforehand that a permanent mains supply is not available, before visiting site the P100 should be given a full charge for approx 7 hours. To do this connect a temporary mains feed and fit the battery fuse. Once charge has been completed remove the battery fuse.

After commissioning the curtain enable the NO CHARGE CLOSE and BRAKE TIMEOUT menus.

If a permanent mains feed is unavailable the battery fuse must be removed prior to leaving site. If a gravity failsafe motor is used the curtain will close as soon as DC power is removed - in this case you may need to strap the curtain up in the retracted position. Any straps must be removed prior to any attempt to operate the curtain.

If the battery fuse is not removed and the P100 is left without a permanent mains feed, there is a danger that the batteries will become fully depleted and will need replacing



Fire Curtain Control


Isolate Main Supply
Before Opening

LEN

Basic Installation of P100

1. Connect 230V AC to the incoming mains supply terminal block - Fused at 5A. Do not turn on yet.

2. Ensure 7A battery fuse is removed from the board and the LCD display is blank.

3. Connect motor to the board. Ensure wire numbers match the terminal numbers. If stutter brake is fitted see "Stutter Brake Connection"

4. Fit 7A BATTERY fuse. The LCD will briefly display the model number and serial number.

5. Turn on the mains supply

6. Briefly turn the key switch and check the running direction of the curtain matches what the display reads. i.e. Curtain closes = Push To Run Close
If the running direction is incorrect scroll to the Orientation menu with one of the outer buttons. Press the middle button and the bottom programming line will be highlighted.

With the outer buttons change the orientation from Left to Right or Right to Left. Press the middle button to store.

DO NOT SWAP WIRES AROUND

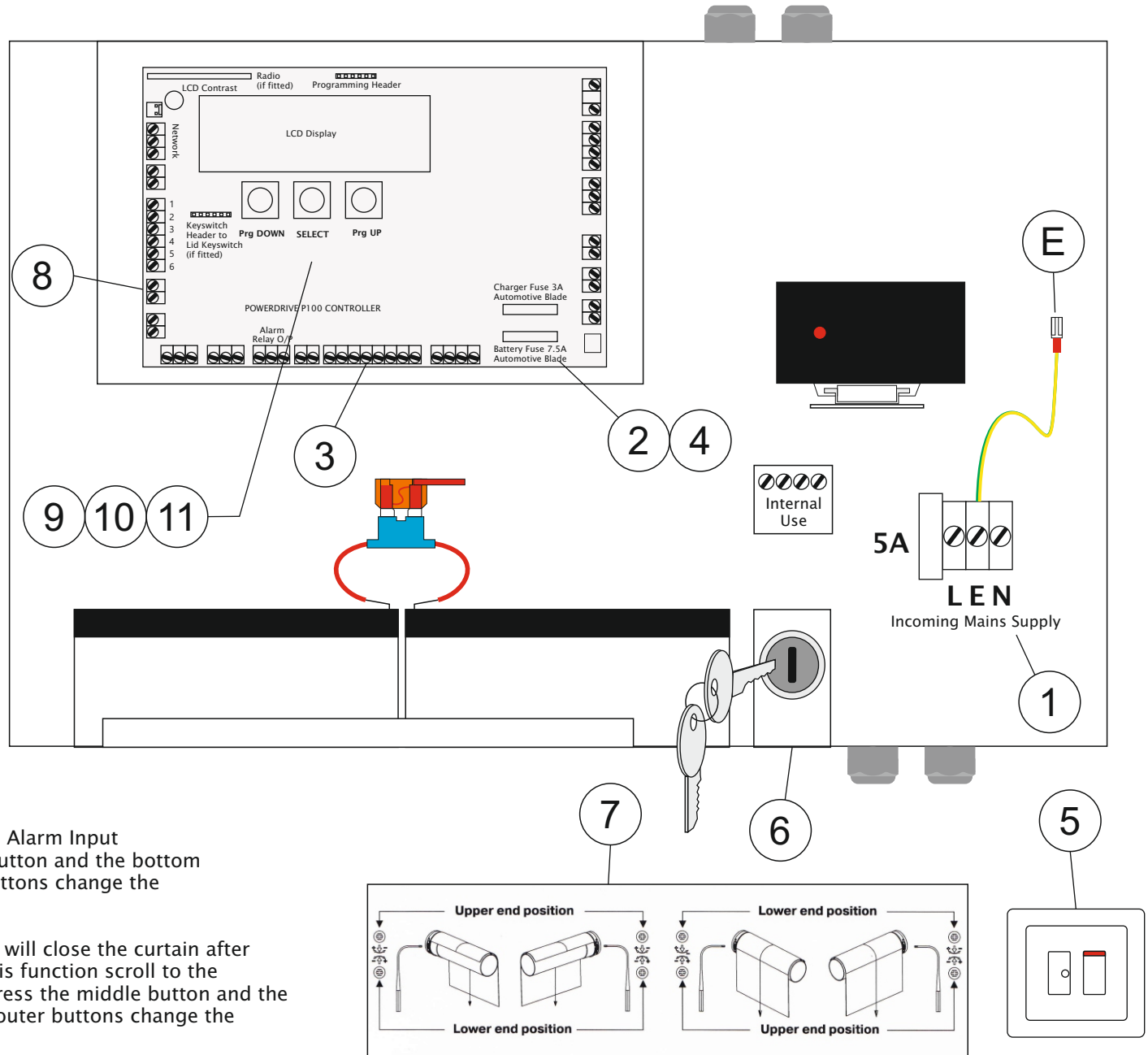
7. Set the Open and Close limits ON the motor with the adjuster tool supplied. Do not use a drill to twist the limits. Ensure the bottom limit is set with the bottom bar fully to the floor.

8. Connect a VOLT FREE, NORMALLY CLOSED alarm signal to the ALARM INPUT terminals

9. To enable the ALARM INPUT on the P100 scroll to the Alarm Input menu with one of the outer buttons. Press the middle button and the bottom programming line will be highlighted. With the outer buttons change the status to Enabled. Press the middle button to store.

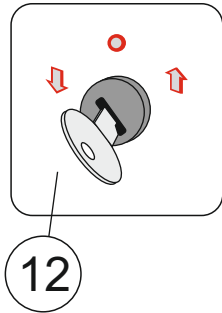
10. The P100 system has a mains monitor function that will close the curtain after 30 minutes in the event of a mains failure. To enable this function scroll to the NO CHR G CLOSE menu with one of the outer buttons. Press the middle button and the bottom programming line will be highlighted. With the outer buttons change the status to Enabled. Press the middle button to store.

11. The P100 system has an energy saving function that turns off the motor brake when the curtain is fully closed. To enable this function scroll to the BRAKE TIMEOUT menu with one of the outer buttons. Press the middle button and the bottom programming line will be highlighted. With the outer buttons change the status to Enabled. Press the middle button to store.

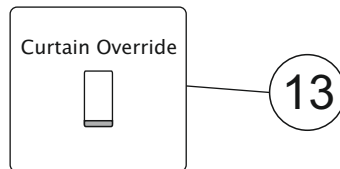


Basic Installation of P100

12. To connect an external switch to the P100 board connect the Common from the switch to Switch Input Terminal 1, the Open contact to Terminal 6 and the Close contact to Terminal . Maximum permissible distance 15m.



13. To connect an emergency override switch connect a normally open momentary switch to the Alarm Override terminals. (Common and Push to make or NO)



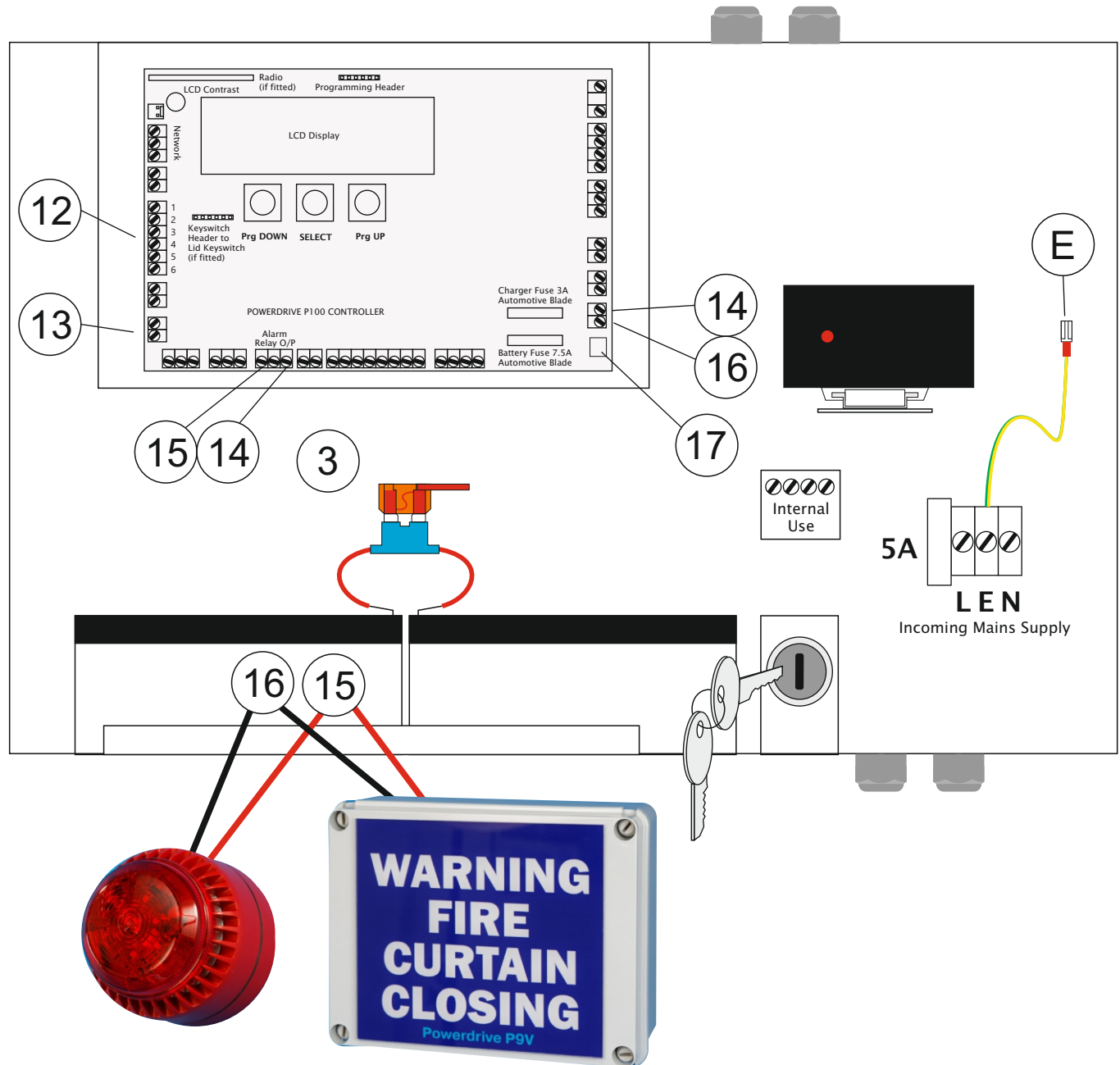
To connect an audio / visual unit to signal an alarm activation:

14. Connect AUX Positive (+) to Alarm Relay Com

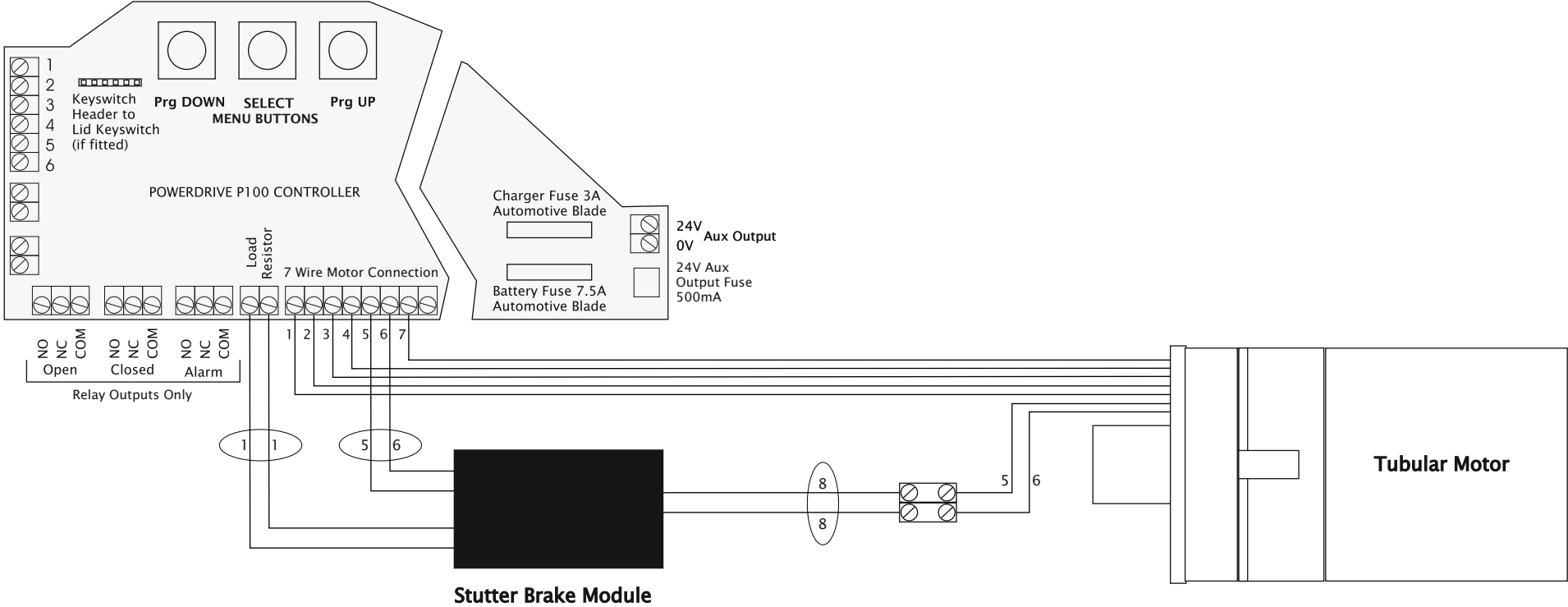
15. Connect the Positive (+) from the Audio / Visual unit to NO of the Alarm Relay

16. Connect the AUX Negative (-) to the - of the Audio / Visual unit

17. AUX Fuse 500mA T5 Fuse



Basic Installation of P100 - Stutter Brake Connection (If Supplied)



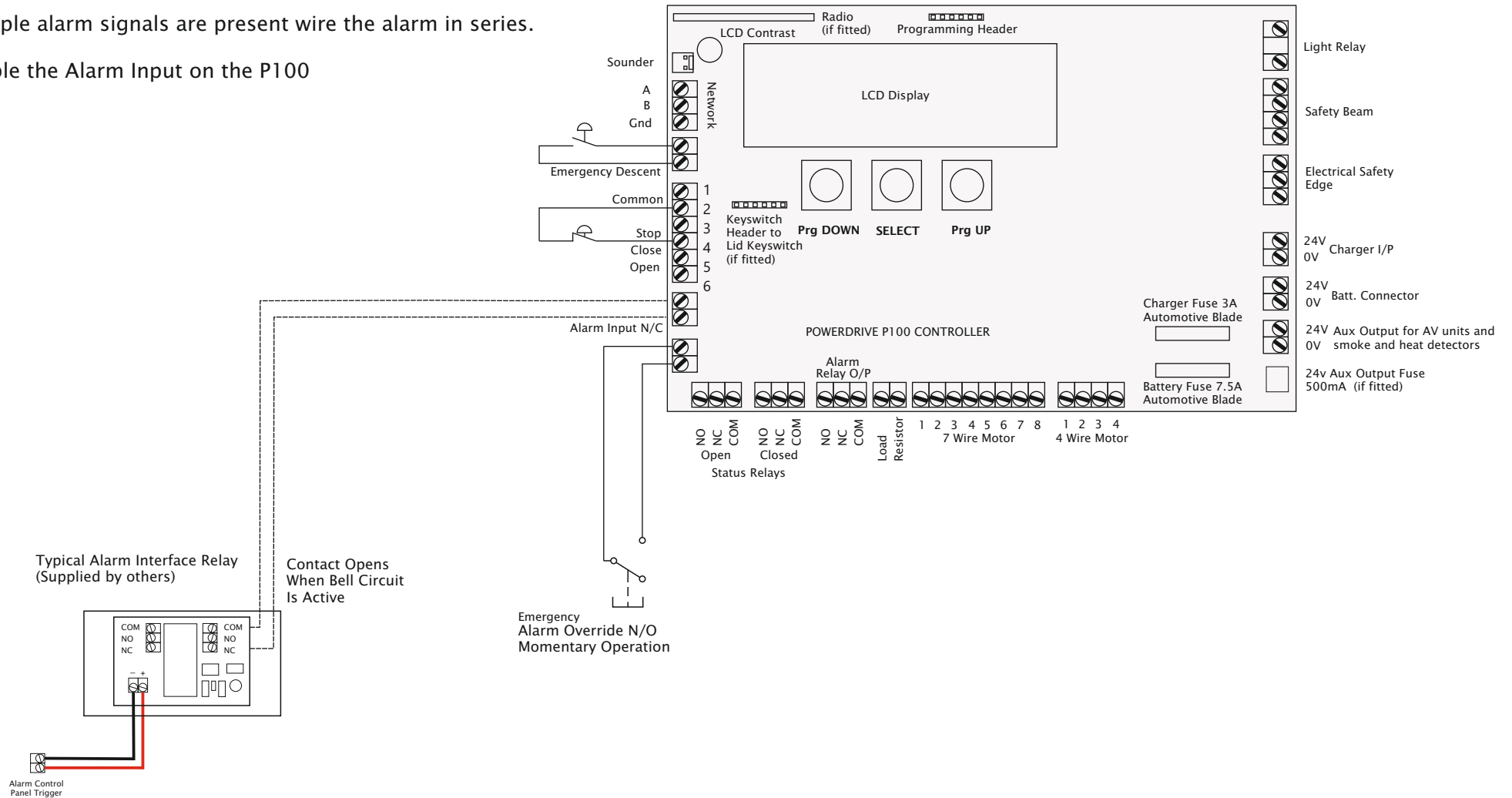
Basic Installation of P100 - Main Alarm Interface

Connection of propriety alarm interface.

1. Connect the NC alarm Input on the P100 to the volt free relay on the alarm interface. One wire to COM and one wire to NC

If multiple alarm signals are present wire the alarm in series.

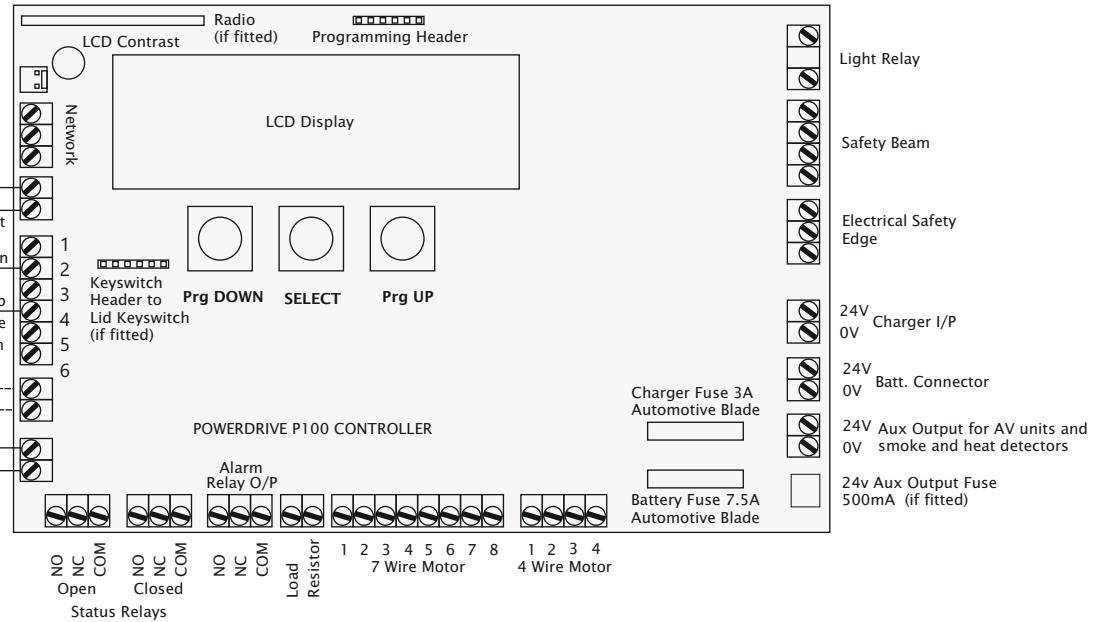
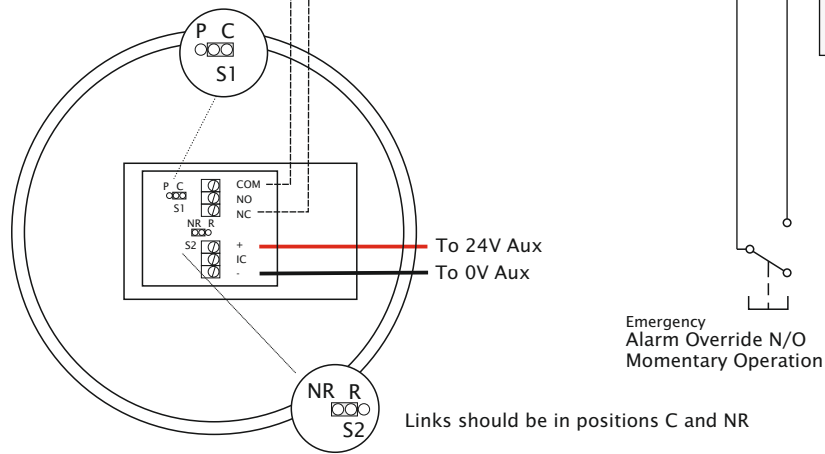
2. Enable the Alarm Input on the P100



Basic Installation of P100 - Local Alarm Interface

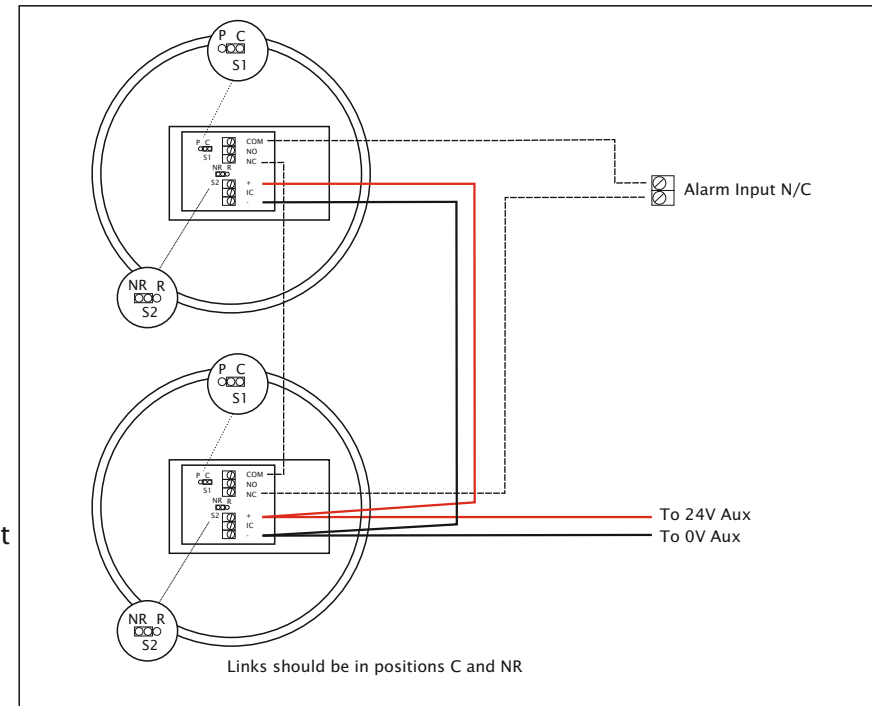
Connection of PMAC-EI 181 / 184 or 186 Smoke / Heat detector.

1. Connect the 24V supply feed taken from the P100's 24V and 0V Auxiliary Output
2. Connect the NC Alarm Input on the P100 to the volt free relay on the detector. One wire to COM and one wire to NC
3. Ensure the links on the detector are in position C and NR.
4. Enable the Alarm Input on the P100



Connection Of Multiple Detectors

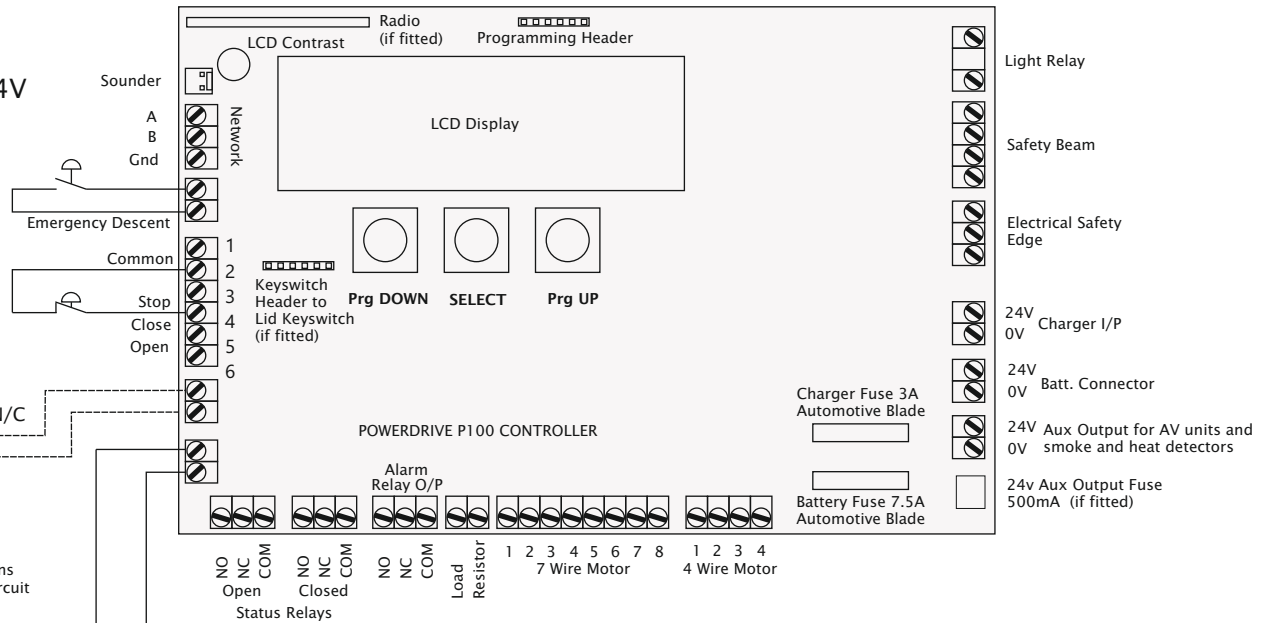
1. Connect the 24V supply feed from the 24V and 0V Auxiliary Output to each of the units (in parallel)
2. Connect one of the NC Alarm Input terminals on the P100 to the volt free relay contact COM on detector 1. Link the NC contact from detector 1 to the COM contact on detector 2. Finally connect the NC contact on detector 2 to the other Alarm Input terminal on the P100
3. Ensure the links on all detectors are in position C and NR.
4. Enable the Alarm Input on the P100



Basic Installation of P100 - Local & Main Alarm Interface

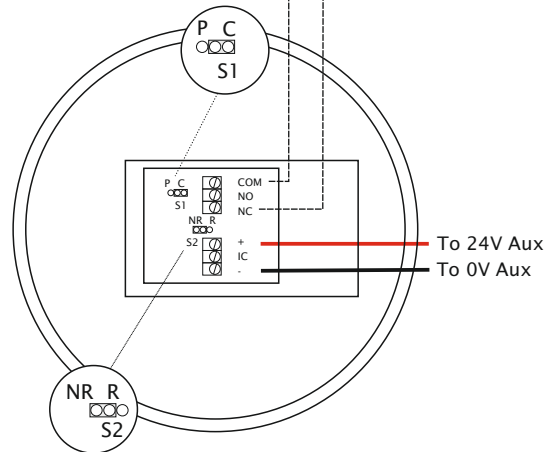
Connection of PMAC-EI 181 / 184 or 186 Smoke / Heat detector in conjunction with alarm interface

1. Connect the detectors 24V supply feed to the P100's 24V and 0V Auxiliary Output
2. Connect one of the NC Alarm Input terminals on the P100 to the volt free relay contact COM on the alarm interface.
Link the NC contact from the alarm interface to the COM contact on the detector. Finally connect the NC contact on detector 2 to the other Alarm Input terminal on the P100.
3. Ensure the link on the detector is in position C and NR.
4. Enable the Alarm Input on the P100



Typical Alarm Interface Relay (Supplied by others)

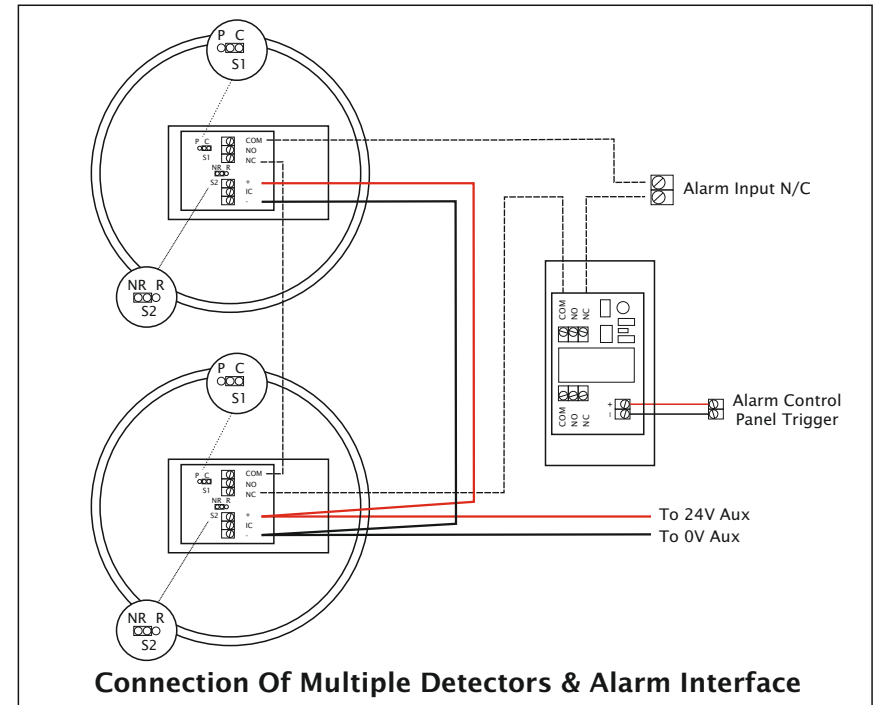
Alarm Control Panel Trigger



Contact Opens When Bell Circuit Is Active

Emergency Alarm Override N/O Momentary Operation

To 24V Aux
To 0V Aux



Connection Of Multiple Detectors & Alarm Interface

Basic Installation of P100 - Operation explained

The PMAc P100FC control panel operates from either a 3 position keyswitch, a pushbutton station with Open - Stop - Close buttons or a 3 channel radio remote control (Open - Stop - Close)

Depending upon the configuration of the panel a brief description of the control operation is as follows.

In **Push to run** mode, the keyswitch, pushbuttons and radio remote control require continuous activation to operate the curtain. This means that as soon as the control signal is removed i.e the pushbutton is released the curtain will stop.

In **Latched mode**, the keyswitch, pushbuttons and radio remote control do not require continuous activation to operate the curtain. This means that the curtain will continue to operate to its end position without the need to keep the control device pressed. To stop the curtain during its open or close cycle press the stop pushbutton on the control station or the stop button on the radio transmitter. With a 3 position keyswitch that does not have an additional stop button, briefly turn the key to the opposite position and the curtain will stop.

The Alarm Input, if enabled, will monitor the normally closed connection to the alarm input terminals.

If the terminals go open circuit i.e the alarm is triggered the curtain will either fully close or fully open (depending on **Alarm Operation** settings)

If the **Delay Alarm** time is set there will be a delay between the panel receiving an alarm input and the commencement of the alarm function (Close direction only). This delay can be disabled by setting the time to zero. The delay alarm time will be ignored if the alarm input is disabled.

If the **Close Warning time** is set, when the fire curtain is given the command to close from a fire alarm signal, the curtain will stop after the preset time and wait. The wait time is predetermined by the time set in the **Close Wait** menu. This has the effect of “showing” where the curtain is descending from before fully closing.

If the **Alarm Function** is set to close the curtain upon receipt of an alarm signal, the Emergency Alarm Override terminals are monitored. If the curtain has closed from an alarm signal and for as long as there is power available from the panel, closing these terminals i.e from an emergency pushbutton will retract the curtain for as long as the time set in menu **Alarm Override**. This enables emergency access for personnel past the closed curtain. As soon as the time period has elapsed the panel will restart the auto re-close operation.

If the **Alarm Relay** is configured as **Alarm Status** the relay contacts change over and remain activated as long as an alarm signal is present. This enables feedback from the panel for some remote monitoring device or allows the user to have an audio / visual output which can be driven from the onboard 24v aux output.

If the **Alarm Relay** is configured as **Charge Status** the relay energises whenever there is a charger voltage applied and the battery status is good. This allows the user to interface the panel with external monitoring devices to indicate a fault with the charger supply or with the batteries inside the panel.

The **Status relays** (if configured) give feedback from the panel when the curtain is fully open or fully closed. This feedback, via a voltage free change over contact, can be integrated into any building management system.

The **Auto reset** function will automatically re-open a closed curtain after the removal of the alarm signal. This eliminates having to manually reset the curtains after a fire test or a false alarm situation.

If the **NO CHRg CLOSE** is enabled, the P100 system with its mains monitor function, will close the curtain after 30 minutes in the event of a mains failure.

Basic Installation of P100 - Configuring the system

To enter the menu, press any of the three menu buttons. You can quit out of the menu at any time by pressing the “Stop” button on the panel, or by waiting for 30 seconds without pressing any of the menu buttons.

When the top line of the menu is highlighted, the bottom line shows the current setting for the highlighted menu item. Pressing the “Prg DOWN” and “Prg UP” buttons scroll through the available settings. Pressing the “SELECT” button stores the current highlighted setting and returns to the top line. If the bottom line is highlighted but you don't want to make any changes to the setting, there are three ways in which you can cancel:

- A) Set it back to the original value
- B) Wait for the menu to time out (30 seconds): or
- C) Press the “Stop” button on the panel to quit out of the menu.

Menu 1 - Restore Default Settings

Resets the control panel back to factory default settings

Menu 2 - Program New Radio Transmitter - Optional

This menu item allows a new keyfob transmitter to be learnt. A maximum of 8 transmitters can be used with the panel at any one time.

Menu 3 - Delete Radio Transmitters

This menu item allows all of the keyfob transmitters stored in the panels memory to be erased. Note. Keyfob transmitters cannot be erased independently, they are all erased at the same time.

Menu 4 - Panel Operation - Push To Run or Latched (*Factory Default Push To Run*)

This menu item determines how the buttons on the controller and the keyfob transmitters operate.

Menu 5 - Release Time - Tension Relief (*Factory Default 2s*)

If the current limit is reached whilst the curtain is opening i.e. the curtain is snagged, the curtain will stop and reverse for a set time - to release the tension before stopping. This is known as the release time. Note. Setting this time to zero will cause an opening curtain to stop without reversing when a current limit is reached.

Menu 6 - Low Battery Close (*Factory Default - Disabled*)

If the battery voltage becomes critical and the control system is unable to function normally, enabling the Low Battery Close will fail safe the curtain to the closed position.

Menu 7 - No Charge Close (*Factory Default - Disabled*)

If the mains power is removed, enabling the No Charge Close option will, after 30 minutes, fail safe the curtain to the closed position to indicate that there is mains failure. The display will read “MAINS FAILURE” if the curtain is operated. The close operation is in stages i.e 5 second close, 10 second wait, 5 second close etc until the curtain is fully closed. The curtain can be re-opened however if the mains fault is not rectified the curtain will re-close.

Basic Installation of P100 - Configuring the system

Menu 8 - Switch 3 - Special Function (*Factory Default Lockout*)

This menu item configures switch input number 2 to either extend the yard light time by an additional 2 minutes or to lock out the radio control and pushbuttons to prevent un-authorized operation.

Menu 9 - Alarm Relay

This menu configures the Alarm Relay to either change state upon an alarm input or to act as a charge status indicator to indicate loss of charger power, low battery or blown main fuse.

Menu 10 - Alarm Input (*Factory Default - Disabled*)

This menu enables /disables the normally closed alarm input. When enabled, the panel will perform the alarm function as defined in the alarm function menu when the normally closed alarm input signal becomes open circuit.

Menu 11 - Alarm Function (*Factory Default - Close*)

This menu item sets the function of the alarm. Note that the alarm input must be enabled first for this item to take effect. This item can be ignored if the alarm input is disabled.

Menu 12 - Auto Reset (*Factory Default - Disabled*)

This menu enables /disables the automatic reset of the fire curtain after an alarm signal has **closed** the curtain. When enabled, the panel will automatically instruct the curtain to re-open to the ready state as soon as the normally closed alarm input opens upon removal of the alarm signal.

Menu 13 - Delay Alarm (*Factory Default 0s*) - *Maximum Delay 10 minutes*

This is the initial delay between the panel receiving an alarm input and the commencement of the alarm function. This delay can be disabled by setting the time to zero. The delay alarm time will be ignored if the alarm input is disabled.

Menu 14 - Alarm Override (*Factory Default 5s*)

When the fire curtain is receiving a signal to close from the Fire Alarm it is possible to re-open the curtain in an emergency by closing the Alarm Override contact i.e with an escape override switch. The time set in menu "Alarm Override" is the time that the curtain will re-open for when the Alarm Override contact is closed. For example if the time is set to 10 seconds, the curtain has closed due to an alarm signal, by briefly shorting the Alarm Override terminals the curtain will re-open for 10 seconds before re-commencing its closing procedure.

Menu 15 - Close Warning (*Factory Default 0s*)

When a fire curtain is given the command to close from a fire alarm signal it is possible to stop the curtain part way through a close sequence, "show" where the curtain is closing from, wait for a set time, then continue closing. The close warning time is the period of time that the curtain operates to the required "on show" position from the fully open position.

The curtain will then remain in this position until the time set in "Close Wait Time" has elapsed.

Note that setting either the "Close Warning Time" or the "Close Wait Time" to zero will stop the curtain from doing a mid-sequence wait.

Basic Installation of P100 - Configuring the system

Menu 16 - Close Wait (*Factory Default 0s*) - *Maximum Wait 10 minutes*

This is the time that a closing curtain stops for, before continuing to close. This allows the curtain to stop part way through a close sequence, wait for a set time, then continue closing. Note that setting either the close warning time or the close wait time to zero will stop the curtain from doing a mid-sequence wait.

Menu 17 - Emergency Descent (*Factory Default - Disabled*)

If enabled, once the emergency descent input is shorted, the curtain will be allowed to free fall / driven (see menu 16) down regardless of the state of the safety devices. The 240V light relay is then used as a panic relay and is only switched on when the emergency descent is activated.

Menu 18 - Descent type (*Factory Default - Driven*)

This menu item sets whether the curtain either freefalls under gravity without any controlled descent or is driven down under power. When freefall is selected the curtain is "kick started" and the brake is released to allow the curtain to descend.(for use with the 7 wire motor only)

Menu 19 - Motor Orientation (*Factory Default - Right*)

This menu item is used to set the orientation of the motor to either left or right hand side of the curtain.

Menu 20- Network (*Factory Default Slave*)

Group control of panels for multi operational applications..

Menu 21 - Status Relay Control (*Factory Default On*)

As a battery saving feature this menu item allows the fully Open & fully Closed status relays to be turned off or on.

Menu 22 - Current Limit

This menu item allows the current limit to be set on the control panel

Menu 23 - Brake Timeout (*Factory Default - Disabled*)

This menu enables /disables the energy saving mode. When enabled, the brake on the motor is de-energised 10 seconds after the lower limit has been reached. This enables the panel to save power especially in situations where there has been a power cut and the curtain has closed after 30 minutes. (NO CHRGE CLOSE menu Enabled)

Routine Maintenance P100

All fire safety measures , including detection and alarm systems need to be checked regularly and maintained. According to the Government's Fire Safety Unit, this is best done by a qualified person with the necessary knowledge, training and experience. A use of the permanent record of the servicing work undertaken will help demonstrate compliance with the law.

Previously it was recommended that fire systems were serviced quarterly. Recent changes to BS5839 Part 1: 2002 now recommend intervals no greater than 6 months unless your fire risk assessment deems it necessary to have quarterly service intervals.

Maintenance & Testing Recommendations

The period between checks is at the discretion of the customer however we recommend the following:

Weekly	Check all system for correct operation. Test operation of systems, self contained detectors and check integrity of curtain.
Quarterly to Half Yearly	Inspection and test of system by a competent engineer
Annually	Full inspection and test of system by a qualified and competent engineer. Clean self contained detectors Replace the two 12V lead acid batteries in the control panel*

*The P100 Panel incorporates two lead 12V lead acid batteries which are maintenance free. However it is recommended that the battery condition is monitored on a regular basis and that they are exchanged as necessary and at least every 12 months.

Useful Information P100

Enclosure

Dimensions	300 x 300 x150mm
IP Rating	IP50
	Enclosure to be sited in dry location
Material	Steel

Supply Voltage

Panel Voltage	100-240V ac 50-60Hz Input. Fused 2A
Operating Voltage	24V
Panel Batteries	2 x 12v 3.2 AH or equivalent
Charger	Universal 100 -240V ac 50-60Hz input / 27.4V - 29.4V dc output

Test Specification

EN 6100-6-2 : 2001
EN 6100-6-3 : 2002
A11 : 2004

Routine Maintenance P100 - What To Do If

Symptom	Possible Cause	Rectification
The LCD is blank	Main fuse not fitted or blown Batteries flat	Fit Battery Fuse 7.5A Automotive Blade Type Connect charger and re-charge panel
The motor will not operate	The Motor is incorrectly connected The limits are activated	Check motor connection Re-set the motor limits
The LCD Displays "Thermal Trip" <i>The motor run time of 6 minutes has been exceeded</i>	The motor has been run for longer than 6 minutes in any 24 minute period	Allow the motor to cool down before re-starting. 24 minutes cooling = 6 mins run 12 mins cooling = 3 mins run
The curtain control descends after 30 minutes. Display reads "Mains Failure" <i>The battery charger disconnected and or low battery descent option is activated.</i>	The battery charger has been disconnected for 30 minutes The curtain has closed to indicate mains failure	Re-connect the mains supply
The curtain control descends <i>The battery charger disconnected and or low battery descent option is activated.</i>	As above but including Battery power depleted Damaged motor cable Main fuse blown	Re-charge the control panel Replace the motor Replace the Battery Fuse (7.5A)
The LCD Displays "Low Batt Chrg'g" <i>The battery voltage is low and the batteries are re-charging</i>	The system is OK	No action required

Routine Maintenance P100 - What To Do If

Symptom	Possible Cause	Rectification
The LCD Displays "System Charging" <i>The batteries are topping up charge</i>	The system is OK	No action required
The LCD Displays "Current Limit"	The Motor is incorrectly connected The current limit setting is too low There is a short in the wiring There is a fault in the motor	Check motor connection Check the "Current Limit" menu Check wiring on cables 3 & 4 Replace the motor
The LCD displays "Bat Low NO Chrg!" For a prolonged period of time <i>The batteries are not charging</i>	The charger is not connected The charger fuse is blown	Connect the charger Fit charger fuse 3A Automotive Blade Type
The LCD Displays "Battery Fault"	The battery voltage is too low The cells have broken down in the batteries The Stop circuit is Open	Recharge the batteries Replace the batteries Re-make the Stop circuit
The menus cannot be accessed	The alarm input is open circuit. i.e. the alarm is activated	Re make the Alarm Input

Routine Maintenance P100 - Maintenance Record

Date:		Engineer:	
Action Taken:			
Next Service Due:			
Date:		Engineer:	
Action Taken:			
Next Service Due:			
Date:		Engineer:	
Action Taken:			
Next Service Due:			
Date:		Engineer:	
Action Taken:			
Next Service Due:			
Date:		Engineer:	
Action Taken:			
Next Service Due:			

Auto Return Reset Function:

Set Dipswitch 5 to the "OFF" position for manual fire alarm reset mode. This is required after turning off the alarm. Set Dipswitch 5 to the "ON" position to automatically reset the fire curtain to its default position after the fire alarm has been activated.

Fire Alarm Test:

Place the jumper onto the two pins to activate the fire test signal. Place it back onto one pin to deactivate the fire test signal or move SW2 to the opposite position.

Emergency Retract:

Whilst the fire alarm is activated, the door can be raised by any trapped individuals through pressing the up button on a switch (not provided), enabling them to escape. The door will then automatically close. If the door is already descending, the door can be stopped by pressing the up button once and twice to stop the door.

Split-Drop Delay Set Up:

The delay can be set between 0 and 999, as shown on the digital display's counter.

- Hold the "Setting" button
- Press the "Stop" button and the digital display will read --4 (First Drop Delay Timer)
- Press "Up" and "Down" to adjust the delay shown on the digital display's counter
- Press the "Stop" button and the digital display will read --5 (Second Drop Delay Timer)
- Press "Up" and "Down" to adjust the delay shown on the digital display's counter

Voltage Display:

Real-time voltage is also shown on the digital display for backup power supply. Whilst in stand-by mode, press the "stop" button and the real time voltage will be displayed.

Please ensure that all limits have been set before wiring any accessories.

Wiring a Safety Beam:

Terminal 4 - Safe (White)

Terminal 5 - Normally Closed (Black)

(Brown) Terminal 6 - Common (Yellow)

Terminal 7 - Live - (Blue)

Terminal 8 - Live +

Wiring a Light Guard:

(From the Light Guard relay box)

Terminal 14 - DC -

Terminal 15 - DC +

Terminal 17 - Normally Open

Terminal 18 - Common