

## EMC3B

### Multi-Function Control System for Fire Resisting Rolling Shutters

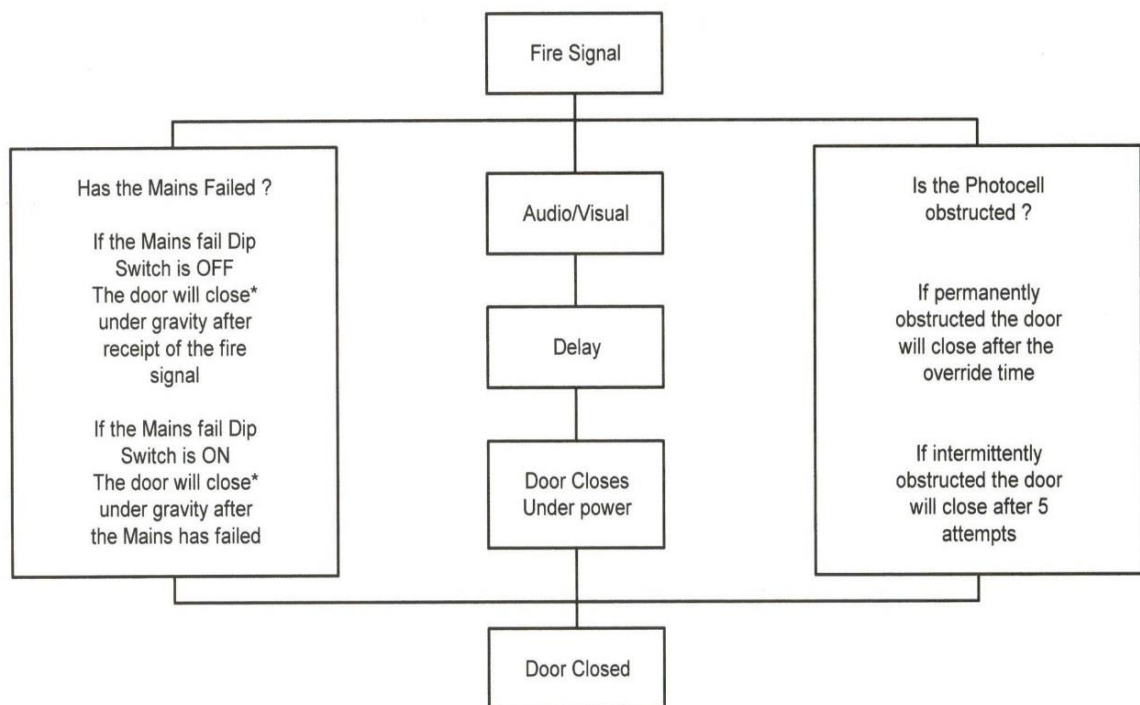
- Aesthetic IP65 enclosure
- Battery backup as standard
- Combined audio/visual Warning
- Normally open volt free contact
- Standard operation - audio visual delay then close
- Part close operation
- Mains fail



### Application

The fire control panel provides total control of commercial and industrial fire resisting rolling shutters in the event of a fire. The EMC3B interfaces directly with the fire alarm on site and provides the fire resisting rolling shutter with the intelligence to close in the event of a fire, protecting both occupants and premises from exposure to smoke and flame damage. Detection of mains failure, low batteries, fire signals and via volt free relays can also interface with building management, escalators and lifts.

### Operating Principle

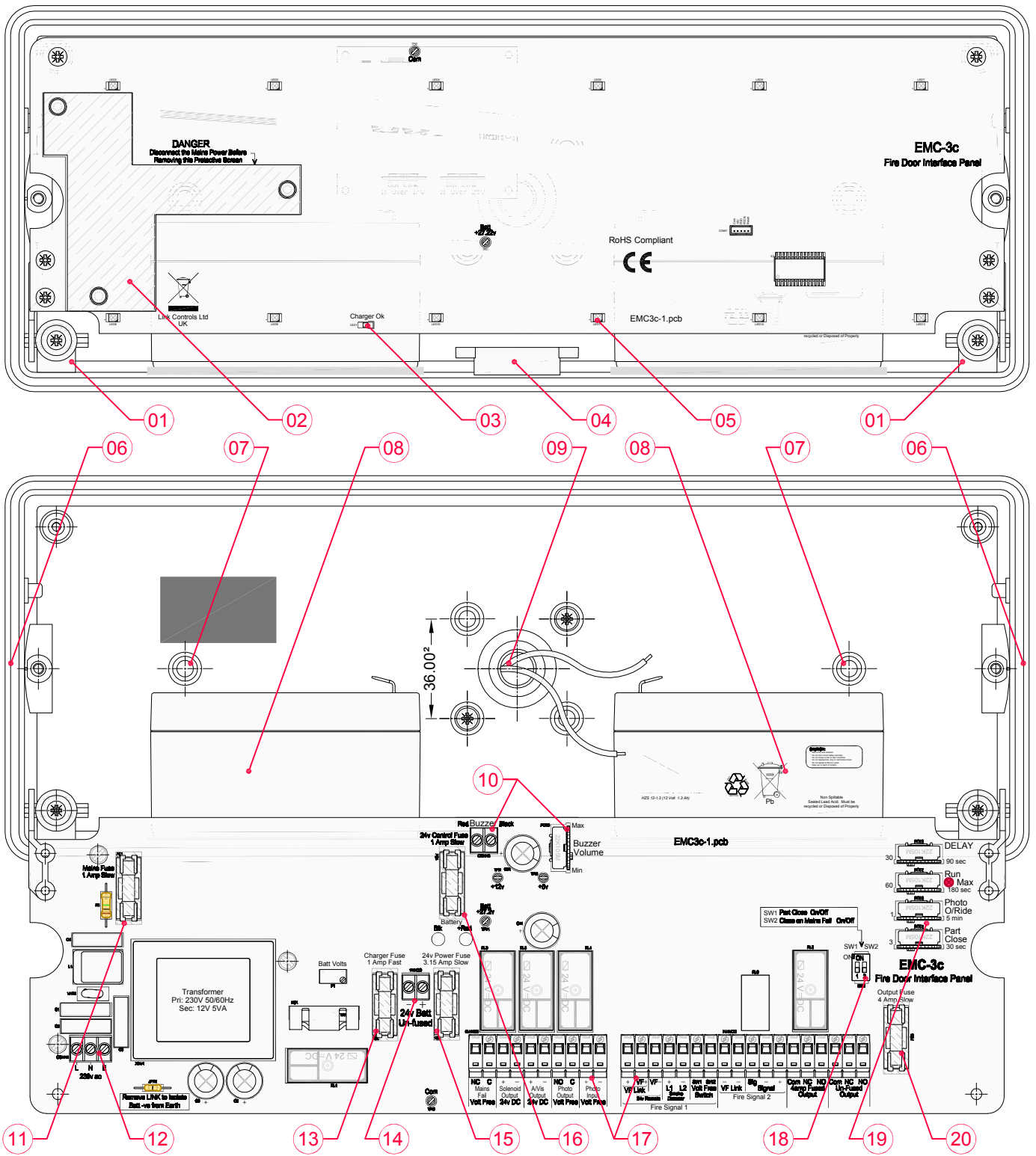


\* Closure under Mains Fail Conditions takes place after the delay and the Audio/Visual

# General Arrangement



# External & Internal P.C.B. Features



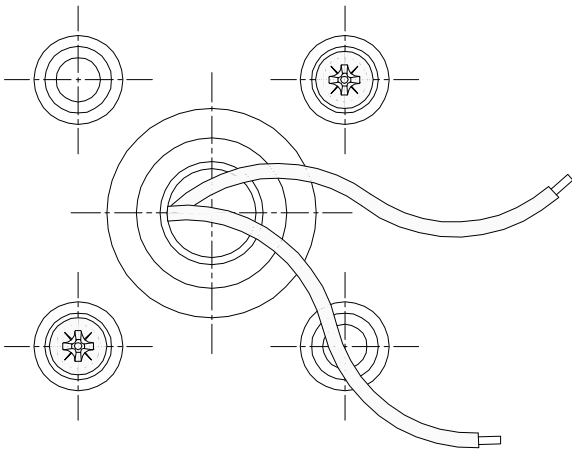
Key	Description	Key	Description
01	Printed Circuit Board Hinges	11	1A Mains Input Fuse
02	Protective mains insulation cover ( <b>DANGER!</b> Risk of electric shock if removed)	12	230VAC Mains Supply Terminals
03	Charge O.K. L.E.D.	13	1A Battery Charger Fuse
04	Sounder - If it is constant then check the fuses & that the battery voltage is within range (>20V...<28V)	14	24VDC (Unfused) Auxiliary Terminals
05	High Efficiency L.E.D.'s	15	3.15A 24VDC Fuse
06	Alternative Conduit/Cable entry positions	16	1A Control Fuse
07	Mounting Holes: 2 x Ø6.00mm Holes @ 240.00mm apart	17	Control Input/Output Terminals
08	2 x 1.3Ah 12VDC Batteries	18	Function D.I.L. Switches
09	Terminal Box Fixings (4 x Ø6.00mm Holes @ 36.00mm <sup>2</sup> apart)/Cable Entry Holes (Recommended)	19	Timer Selection Potentiometers
10	Sounder Terminals & Volume Control Potentiometer	20	4A Relay Output Fuse

## External & Internal P.C.B. Features

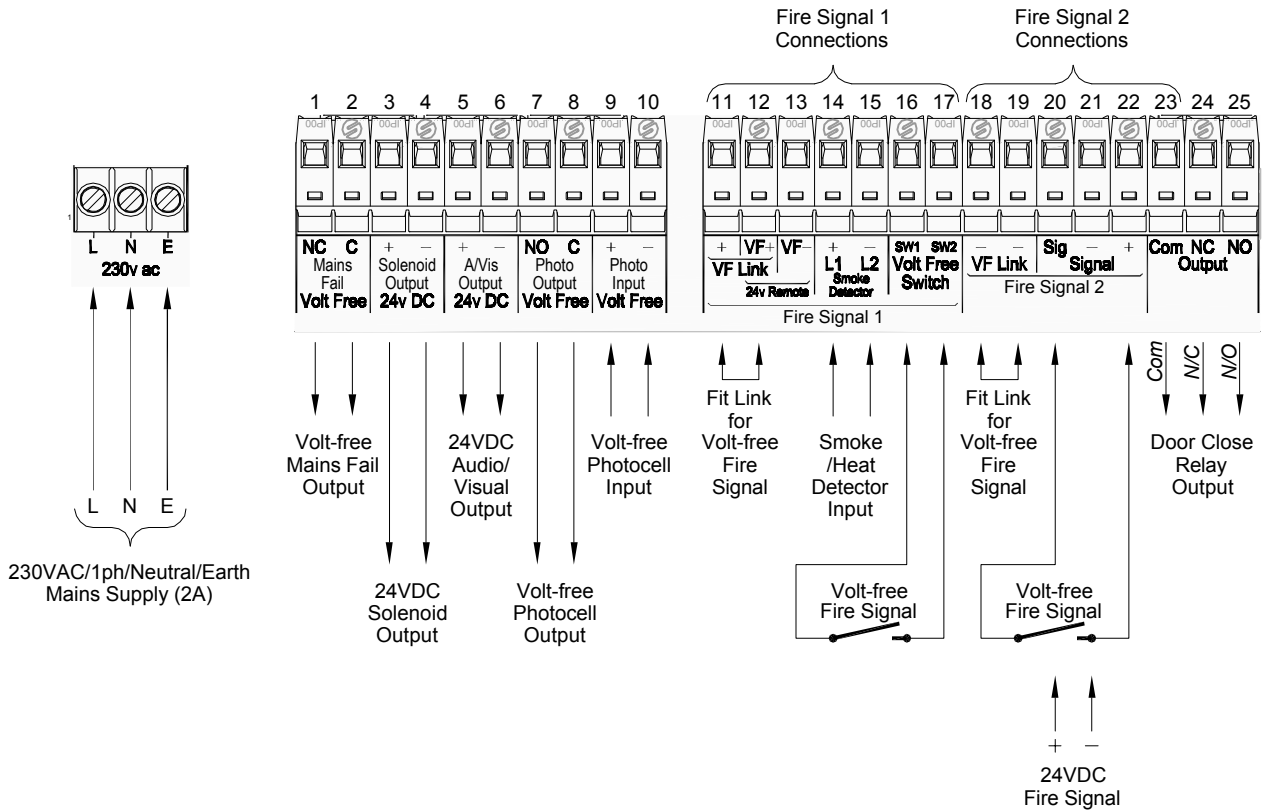
Key	Description
01	Printed Circuit Board Hinges
02	Protective mains insulation cover ( <b>DANGER!</b> Risk of electric shock if removed)
03	Charge O.K. L.E.D.
04	Sounder - If the sounder is continuously active then check that the fuses are OK & the battery voltage is within range (>28 or <20)
05	High Efficiency L.E.D.'s
06	Alternative Conduit/Cable entry positions
07	Mounting Holes
08	2 x 1.2Ah 12VDC Batteries
09	Terminal Box Fixing/Cable Entry Holes (Recommended)
10	1A Mains Input Fuse
11	230VAC Mains Supply Terminals
12	1A Battery Charger Fuse
13	3.15A 24VDC Fuse
14	1A Control Fuse
15	Control Input/Output Terminals
16	Function D.I.L. Switches
17	Timer Selection Potentiometers
18	4A Relay Output Fuse

### Recommended Conduit Fixing & Cable Lengths

It is recommended the EMC-3B Audio/Visual control panel is mounted on a conduit end box to facilitate ease of wiring. Maximum cable length from conduit terminal box mounting position to terminals should not exceed 300mm

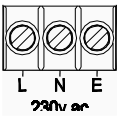


# Terminal Layout



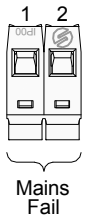
## Terminal Connection Details

### Power Connections

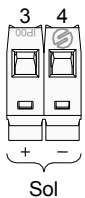


Connect a 1ph/230VAC (2A) supply to terminals 'L', 'N' & 'E'.

### Control Connections



A volt-free signal will be present if the mains supply is lost. (i.e. a Normally Open contact that closes).



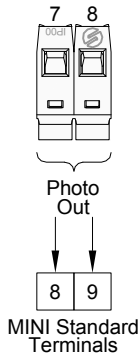
A 24VDC output will be present to fire the solenoid. This is only active if the mains supply has failed and for 1 second before the panel is reset. A 1 second pulse before resetting is necessary to ensure the fire shutter will always close (i.e. in case of a faulty supply to the starter, etc.)



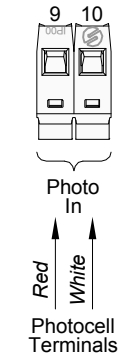
A 24VDC output will be present to drive a Slave Audio/Visual Unit, if required.

# Terminal Connection Details

## Photocell Connections



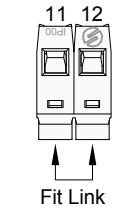
A N/C volt-free output will be present to slave the photocell input (`9` & `10`).



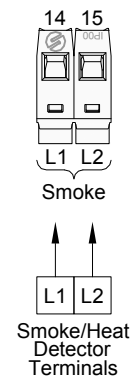
Connections for the N/C switch connections from a photocell (Link if not used).

(Link Controls Stock Code: 33-1005)

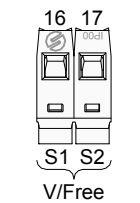
## Fire Signal '1' Connections



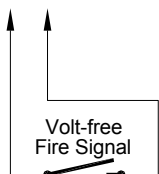
Link these terminals to use Fire Signal 1 as a volt-free input or for Smoke/Heat detectors.



Connections for a maximum of 2 Smoke/Heat detectors in parallel. (`L1` & `L2` on standard diode base).

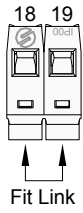


Connection for a N/O volt-free Fire signal.

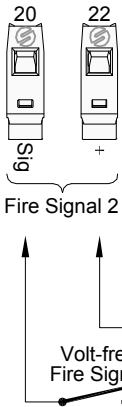


# Terminal Connection Details

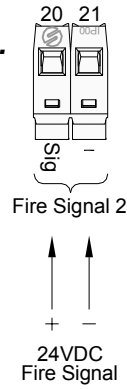
## Fire Signal '2' Connections



Link these terminals to use Fire Signal 2 as a volt-free input or leave these terminals free if a 24VDC fire signal is to be used.

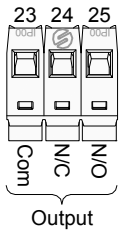


Connection for a N/O volt-free Fire signal. *or...*



Connections for a 24VDC Fire signal.

## Door Close Output Connections



A volt-free change over contact is available to either:-

1. Drive a fire door closed, via a starter.
2. Interface to a tube motor directly (Fused@4A).
3. Isolate the keyswitch & drive the door Open/Closed as required.

# D.I.L. Switch & Potentiometer Function Details

## D.I.L. Switch `1` Operation



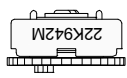
Part Close Function ON/OFF

## D.I.L. Switch `2` Operation



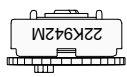
Close on Mains Fail Function ON/OFF

## D.I.L. Switch & Potentiometer Operation



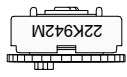
**Delay**

D.I.L. Switch `1` OFF - Audio/Visual Delay  
 Min. 30 seconds  
 Max. 91 seconds



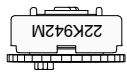
**Delay**

D.I.L. Switch `1` ON - Fully Closed Timer (Smoke Curtain)  
 Min. 0 seconds  
 Max. 330 seconds



**Run**

Run Timer  
 Min. 60 seconds  
 Max. 183 seconds



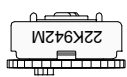
**Photo  
O/Ride**

Photocell Override Timer  
 Min. 60 seconds  
 Max. 308 seconds



**Part  
Close**

D.I.L. Switch `1` OFF - No Function



**Part  
Close**

D.I.L. Switch `1` ON - Part Close Timer (Smoke Curtain)  
 Min. 3 seconds  
 Max. 33 seconds



# EMC-3B Audio/Visual Control Panel Operation

## Basic Operation

On receipt of a Fire signal, the audio/visuals will activate.

After a delay, set by the Delay pot. (30-91secs), the door will close to the Fully Closed position, set by the Run timer (60-183 secs). Once the Run timer has timed out (60-183secs) the panel will pulse the solenoid output and reset.



D.I.L. Sw.1 OFF  
D.I.L. Sw.2 OFF

## Part Close (Smoke Curtain) Operation

On receipt of a Fire signal, the audio/visuals will activate.

The door will close to the Part Close position, set by the Part Close pot. (3-30secs).

After a delay, set by the Delay pot. (0-330secs), the door will close to the Fully Closed position. Once the Run timer has timed out (60-183secs) the panel will pulse the solenoid output and reset.



D.I.L. Sw.1 ON  
D.I.L. Sw.2 OFF

## Mains Fail - Basic Operation

In the event of a Mains Power failure, the audio/visuals will activate.

After a delay, set by the Delay pot. (30-91secs), the door will close to the Fully Closed position by solenoid release. Once the Run timer has timed out (60-183secs) the panel outputs will reset. The audio/visuals will remain active until mains power is restored to the panel.



D.I.L. Sw.1 OFF  
D.I.L. Sw.2 ON

## Mains Fail - Part Close (Smoke Curtain) Operation

In the event of a Mains Power failure, the audio/visuals will activate.

After a delay, set by the Delay pot. (30-91secs) the door will close to the Fully Closed position by solenoid release. Once the Run timer has timed out (60-183secs) the panel outputs will reset. The audio/visuals will remain active until mains power is restored to the panel.



D.I.L. Sw.1 ON  
D.I.L. Sw.2 ON

## Photocell Override - Basic Operation

On receipt of a Fire signal the audio/visuals will activate.

After a delay, set by the Delay pot. (30-91secs), the door will attempt to close to the Fully Closed position. If the photocell beam is broken, the door will stop & reverse (if connected to a MINI Standard control panel) or the door will stop (if connected to a tube motor). When the photocell beam is remade the door will attempt to close again. The photocell beam will be overridden after 5 operations and the door will close to the Fully Closed position. If the time the photocell beam is broken exceeds the set duration of the Photocell Override timer (60-308secs), the door will close to the Fully Closed position, set by Run timer (60-183secs). Once the Run timer has timed out the panel will pulse the solenoid output and reset.



D.I.L. Sw.1 OFF  
D.I.L. Sw.2 OFF

## Photocell Override - Mains Fail Operation

In the event of a Mains Power failure, the audio/visuals will activate.

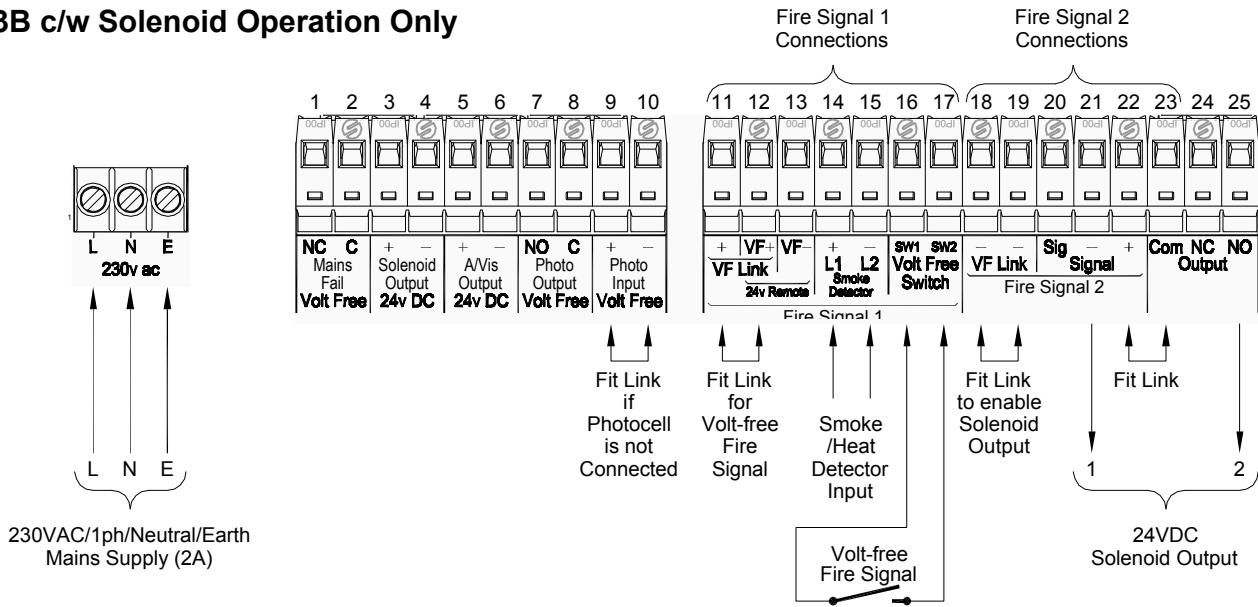
After a delay, set by the Delay pot. (30-91 secs), the door will attempt to close to the Fully Closed position. If the photocell beam is broken, the Photocell Override timer is activated. Once this timer has timed out the door will close to its Fully Closed position via solenoid release. Once the Run timer has timed out (60-183 secs) the panel outputs will reset. The audio/visuals will remain active until mains power is restored.



D.I.L. Sw.1 OFF  
D.I.L. Sw.2 ON

# Example Wiring Connections

## EMC-3B c/w Solenoid Operation Only



### Connection Details

**230VAC Supply (2A):-** Connect a suitable 230VAC supply to terminals `L`, `N` & `E`.

**Motor Solenoid:-** Connect motor solenoid cores `1` & `2` to EMC-3B terminals `21` & `25`.

Fit a link between terminals `22` & `23`.

**Smoke/Heat Detector:-** Connect a suitable Smoke/Heat detector to terminals.

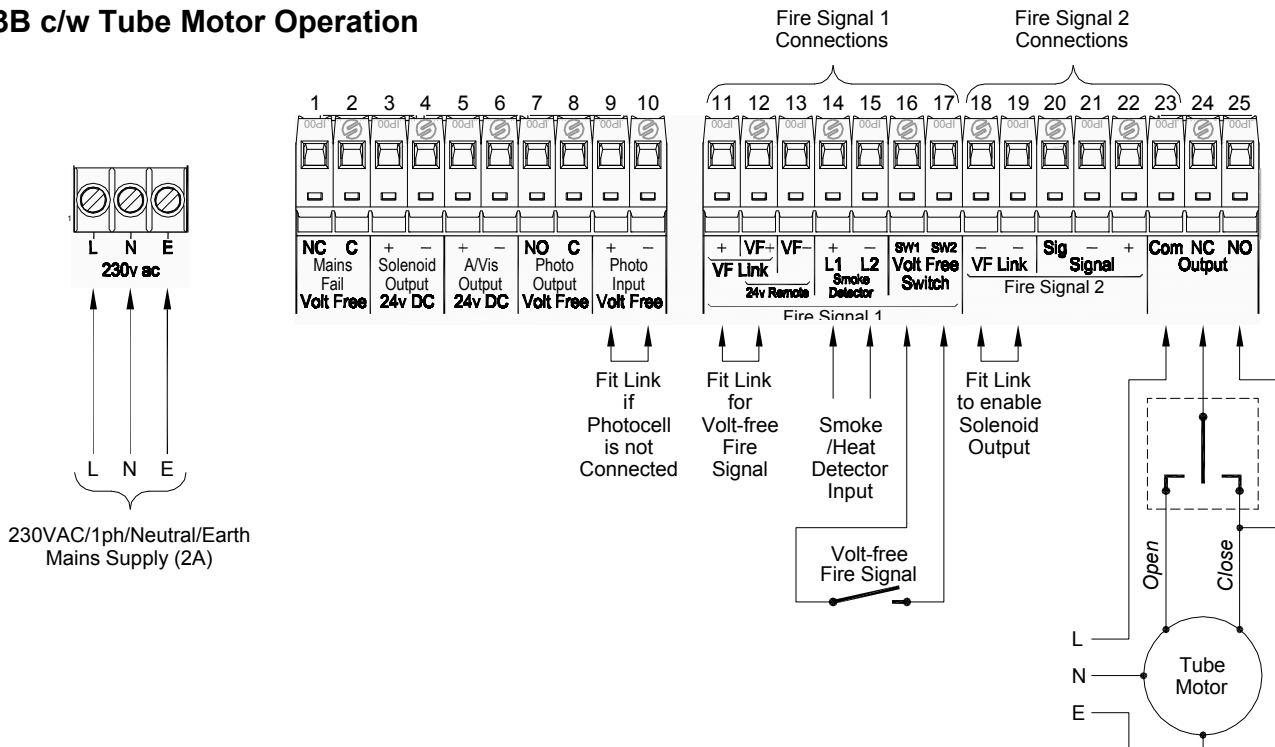
**Volt-free Fire Signal:-** Connect a suitable N/O contact to terminals `16` & `17`.

**Note:-** Only volt-free operation can be selected on Fire Signal 1.

A wire link **MUST** be fitted to terminals `11` & `12`.

**Solenoid Output:-** To enable the solenoid output, a wire link **MUST** be fitted to terminals `18` & `19`.

## EMC-3B c/w Tube Motor Operation



### Connection Details

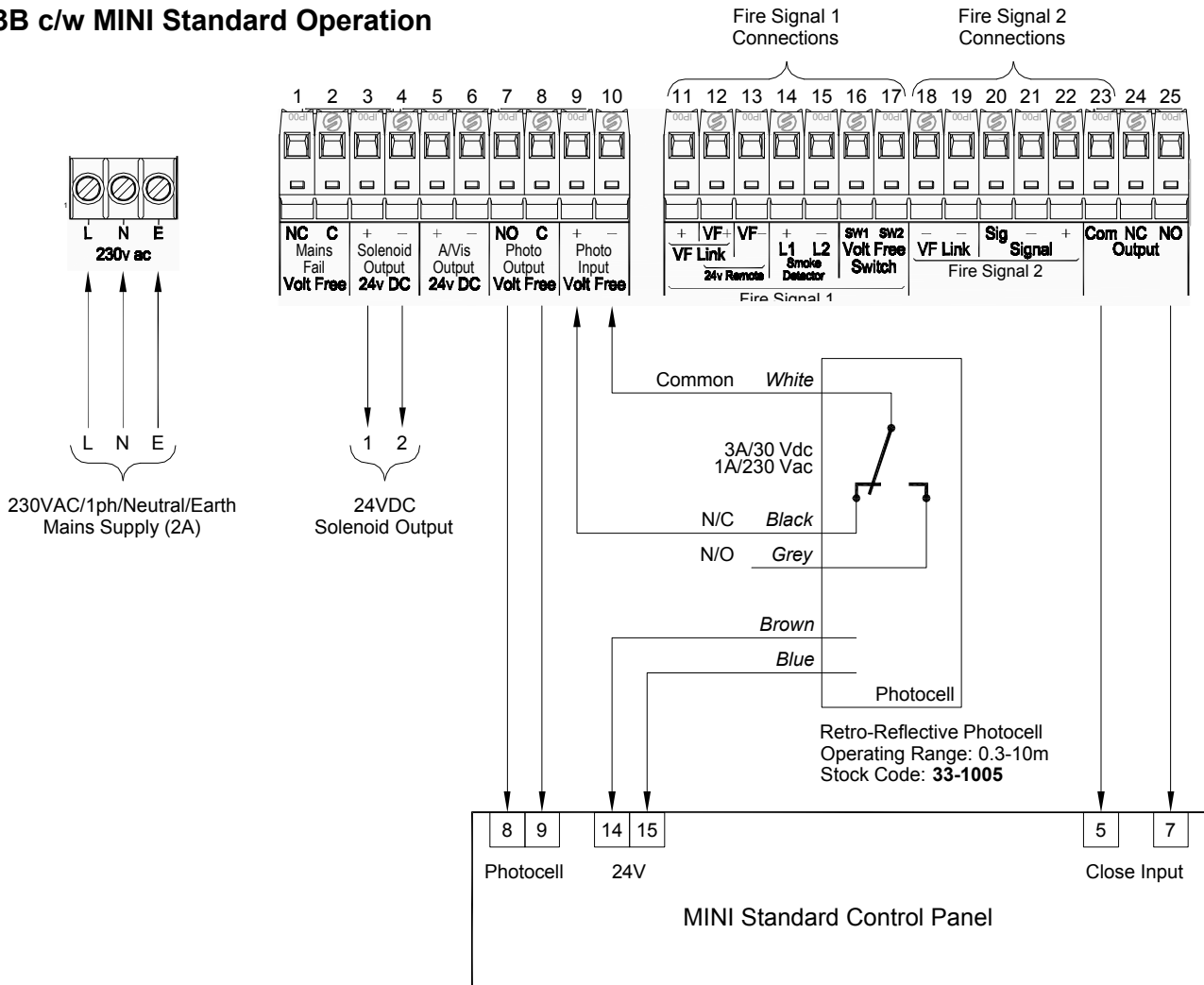
**230VAC Supply (2A):-** Connect a suitable 230VAC supply to terminals `L`, `N` & `E`.

**Smoke/Heat Detector:-** Connect a suitable Smoke/Heat detector to terminals.

**Keyswitch & Tube Motor:-** Connect a N/O Keyswitch & Tube Motor to EMC-3B terminals `23`, `24` & `25`.

# Example Wiring Connections

## EMC-3B c/w MINI Standard Operation



### Connection Details

**230VAC Supply (2A):-** Connect a suitable 230VAC supply to terminals `L`, `N` & `E`.

**Photocell Out:-** Connect MINI Standard terminals `8` & `9` to EMC-3B terminals `7` & `8`.

**Photocell In:-** Connect the White & Red wires of the photocell to EMC-3B terminals `9` & `10` respectively.

**Note:-** The photocell will operate under both Normal & Fire conditions.

**Close Output:-** Connect MINI Standard terminals `5` & `7` to EMC-3B terminals `23` & `25`.

**Motor Solenoid:-** Connect motor solenoid cores `1` & `2` to EMC-3B terminals `3` & `4`, to provide Mains Fail protection.

# Declaration of Incorporation

**Product:** Audio/Visual Fire Door Interface

**Type:** EMC-3B

**Version:** 4


**Declaration is in compliance with:**

Machinery Directive 98/37/EC, meeting the Essential Health & Safety Requirements relating to the Design and Construction of Machinery and also the Supply of Machinery (Safety) Regulations, as implemented in the United Kingdom.

**Declaration:** The equipment supplied by Link Controls Ltd. when installed and maintained according to all the Manufacturer's instructions, in combination with the completed machinery or system that has also been installed and maintained according to all the Manufacturer's instructions, meets the requirements of the Machinery Directive 98/37/EC.

*I, the undersigned, hereby declare that the equipment specified above and any accessory listed in the manual conforms to the above Directives and Standards.*

**Name:** Andy Molloy

**Signature:** 

**Position:** Technical Director

The machinery to which this Declaration of Incorporation relates must not be put into service until the relevant machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 98/37/EC, as amended, and the national legislation related to its implementation.