SVCS-2F & 2G – OPERATING & MAINTENANCE MANUAL V 1.5 12/8/24

SmokeControl SYSTEMS

SVC

Controlling Smoke & Ventilation

SVCS-2G

SVCS-2F

COMMSMASTER

UK CA

Smoke Ventilation Control
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CONTENTS

GENERAL OVERVIEW

The VCS series of smoke vent systems are easy to operate, need very little maintenance and are "intelligent", in that for most common failures (wiring, power supplies etc.) they will set some form of warning alarm.

OPERATION

Once fully installed the system is totally automatic and provided that the Yellow FAULT LED indicator is not on and there are no warning sounds the system will upon receipt of an alarm input condition (BMS Fire Alarm etc.) open the smoke vents. The smoke vents will stay fully open until the input condition (BMS, Fire Alarm, etc.) has been normalised when the vents will close. Should you require the vents to stay open after the alarm panel has been silenced (or de-activated) then a manual open command should be issued by use of the manual key switch on the front of the panel. Alternatively a jumper can be set to bridge S1 & S3, this will force the SVCS to stay in a Fire condition until reset either via the Network or operating the front panel key switch briefly to Close position.

TECHNICAL SPECIFICATION

Supply Voltage	230v AC +10% -7%
Output Voltage	24v DC Min19 Max 29.5
Output Current	5 Amps Max
Ripple (mains supply only)	1 Volt Pk-PkMax
Batteries	2 x 5Ah 12v (Yuasa or Yucel)

FUNCTION

PANEL KEYSWITCH – PRIORITY 1

OPEN	AUTO	CLOSE
All vents will open even if smoke sensor or break glass call points are not activated.	Will obey any remote inputs.	Will close vents even if smoke sensor or break glass call points are activated.

NETWORK COMMANDS – PRIORITY 1 (Network enabled version only)

NET OPEN	NET AUTO	NET CLOSE
Vent will open unless a Panel key override Close is operated.	Will obey any remote inputs.	Will Close vents even if smoke sensor, break glass, Panel Key Open or call points are activated.

FIREMANS OVERRIDE SWITCH – PRIORITY 1

OPEN	AUTO	CLOSE
Vent will open even if smoke sensor or break glass call points are not activated.	Will obey any remote inputs.	Will Close vents even if smoke sensor or break glass call points are activated.

Note: There is no priority between the override switches but a close signal will take priority over an open signal.

SMOKE SENSOR – 2ND PRIORITY

ACTIVATED	NOT ACTIVATED
All Vents will open unless overridden by FIREMANS OVERRIDE, CONTROL PANEL SWITCH or NETWORK CLOSE.	Vents stay closed.

BREAK GLASS – 2ND PRIORITY

ACTIVATED	NOT ACTIVATED
All Vents will open unless overridden by FIREMANS OVERRIDE, CONTROL PANEL SWITCH or NETWORK COMMANDS.	Vents stay closed.

230V POWER FAILURE PROCEDURE

ON POWER FAILURE	ACTION	RESULT
Within 10 minutes	Reports a fault.	HEALTHY LED goes out and FAULT LED flashes and panel sounder bleeps every 8 seconds. Net indicates Fault.
After 72 hours	Shuts down to minimum power.	The system will function for 180 seconds at full load. After 72 hours and 180 seconds of load the system will continue until batteries are exhausted.

INSTALLATION

1. Please read the contents of this manual in its entirety before proceeding with the installation notes below.

2. Unlock cabinet door using key provided and remove PCB.

3. Prepare holes for cable entry. Fit cable glands (by others). Fix cabinet in place.

4. Feed cables into cabinet.

5. Make cable connections as per attached wiring diagrams remove the appropriate connector from the circuit card to facilitate easy access to the connector.

6. Connect ribbon connector (found on back of LED display door) to control board.

⚠ Never connect or disconnect any connector whilst the SVCS2 has power applied.

7. Connect batteries (supplied with panel) as per the wiring **BEFORE** mains power is connected.

8. Make mains connection, Connect Earth leads together in a suitable connector block (test using low value ohms meter).

CABLING

Cabling/connection of this panel should only be carried out by a competent person and in accordance with all local and national standards and legislation.

MAINS VOLTAGE
Two core + earth on a fused 3 Amp spur or a separate circuit protected by a 6 Amp MCB.

VENT ACTUATORS
Two core + earth FP200+ or equivalent for reverse polarity actuators.

Three core + earth FP200+ or equivalent for common with drive open- drive close.

Three core + earth FP200+ or equivalent for Belimo Actuators.

Some actuators have a signal wire to indicate open close status this MUST NOT be connected to the panel.

Cable sizes must be calculated to ensure against excessive voltage drop

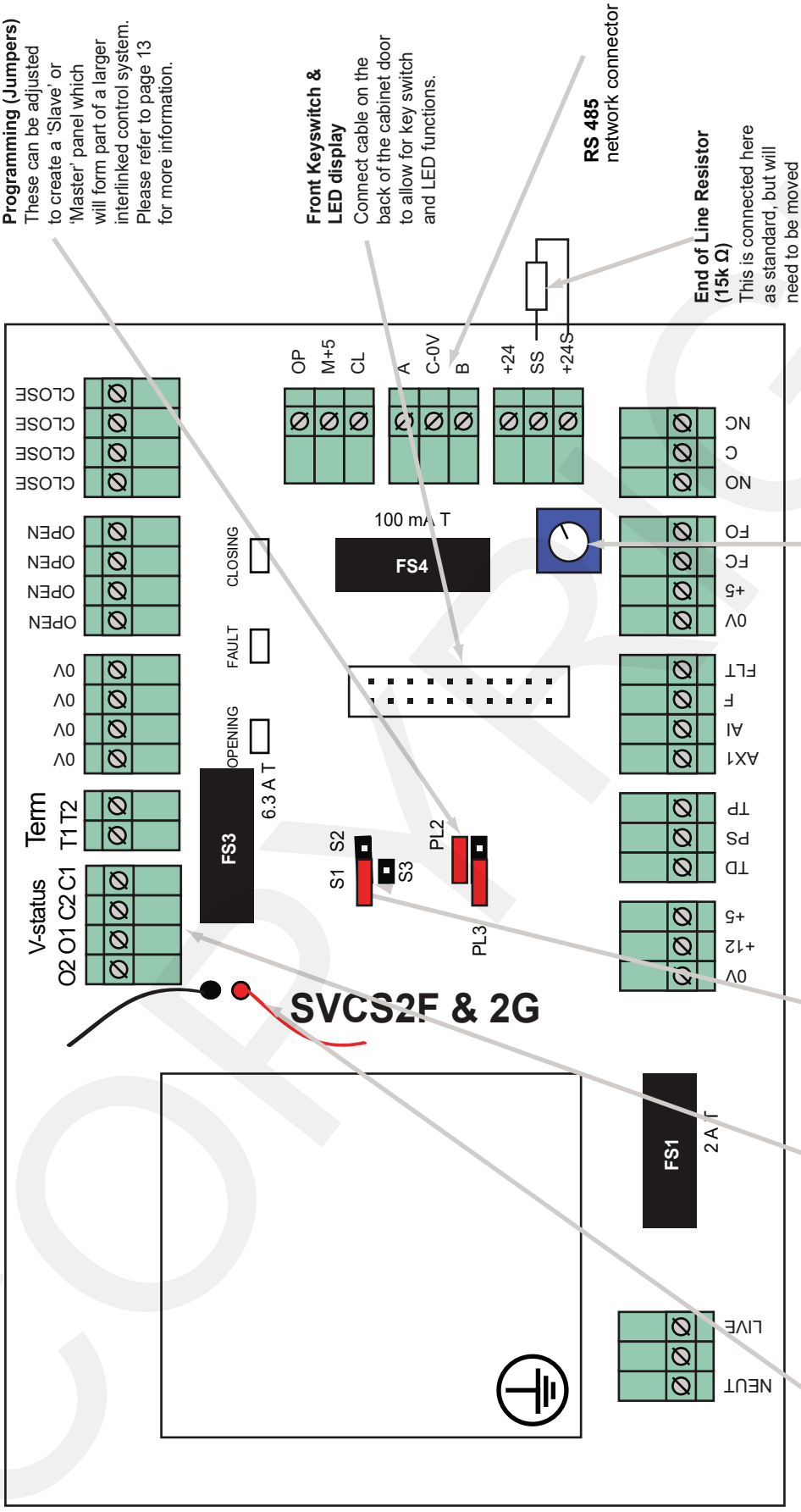
Voltage Drop (Vd) should not exceed 2 Volts

The formula is as follows; Vd = mV x A x m
Where;
A = total amperage of motors
m = Cable length in metres
mV= millivolts per amp per metre figure taken from manufacturers cable data or use the tables in the BS7671 (wiring regs.) document.

Example;
1 Supermaster Actuator = 2 Amps max load
Cable length m = 20 metres
1.5mm square cable == 29mV per amp per metre == 0.029Volts

(0.029 x 2) x 20 = 1.16V (Vd)
The above result is well within the limit of a 2 Volt voltage drop.

OPERATING ELEMENTS



Programming (Jumpers)
These can be adjusted to create a 'Slave' or 'Master' panel which will form part of a larger interlinked control system. Please refer to page 13 for more information.

Front Keyswitch & LED display
Connect cable on the back of the cabinet door to allow for key switch and LED functions.

RS 485 network connector

End of Line Resistor (15k Ω)
This is connected here as standard, but will need to be moved if the system requires it. Please refer to pages 8 & 9 for more information.

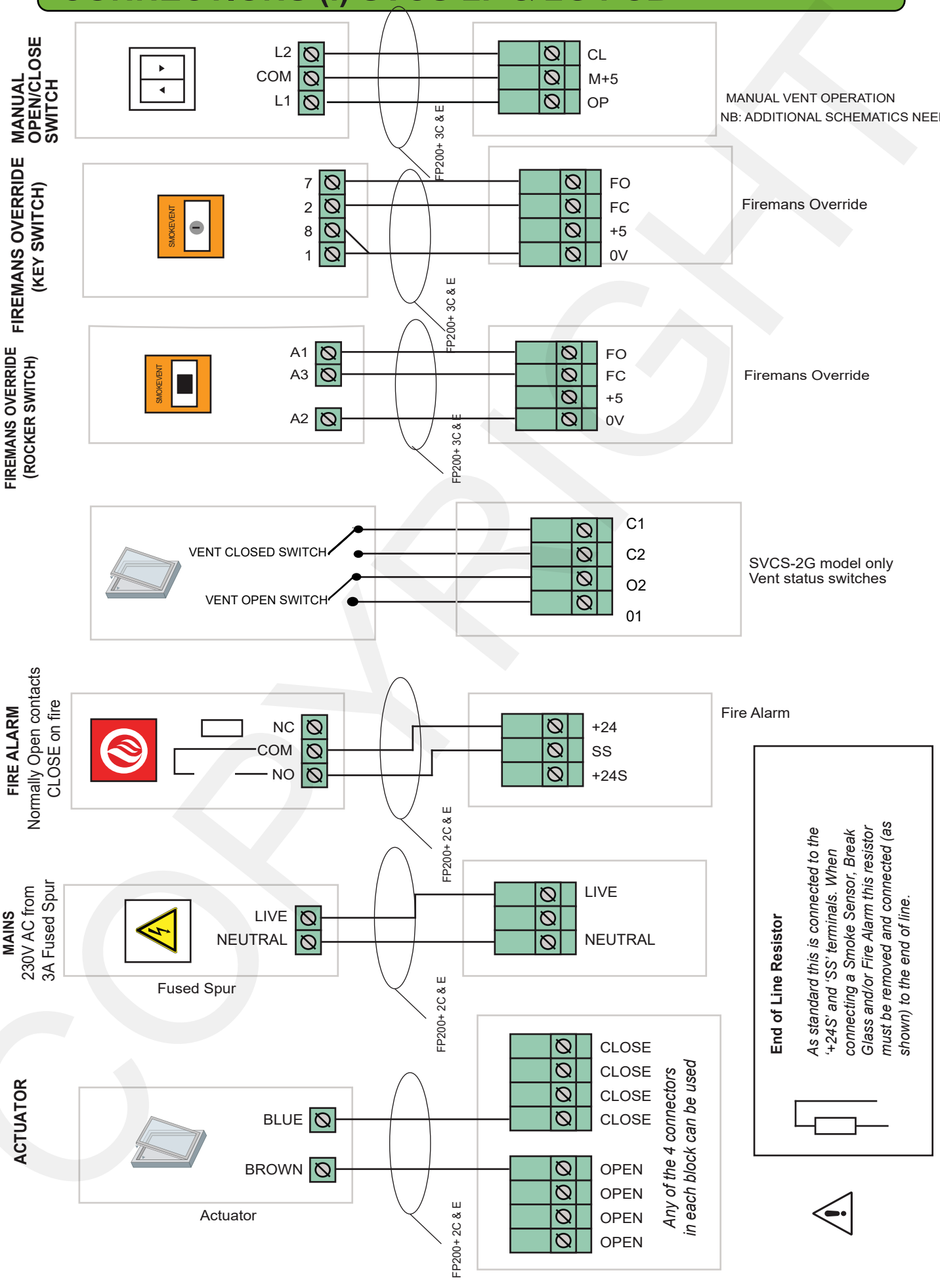
Timer Adjustment
Use this to adjust the number of seconds that 24v power is applied to the actuator/s. Please refer to page 14 for more information.

Manual Reset
As a default the SVCS-2 will automatically reset when smoke is cleared. To program the panel to allow for a 'Manual Reset' please connect jumper terminals 'S1' to 'S3' using jumper provided.

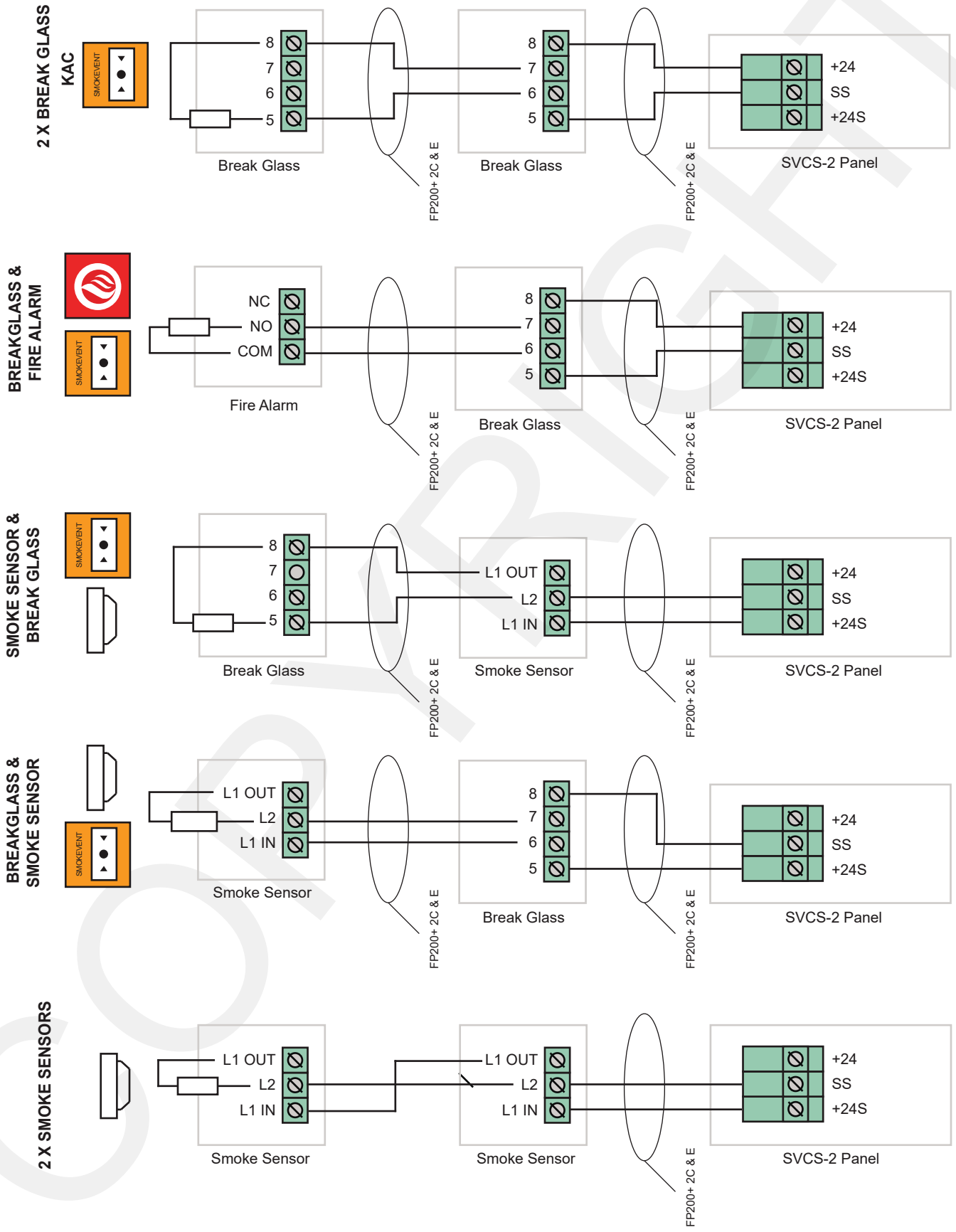
Vent status
Vent status switches may be connected here, if vent status indication require on front of panel *(SVCS-2G model only)*

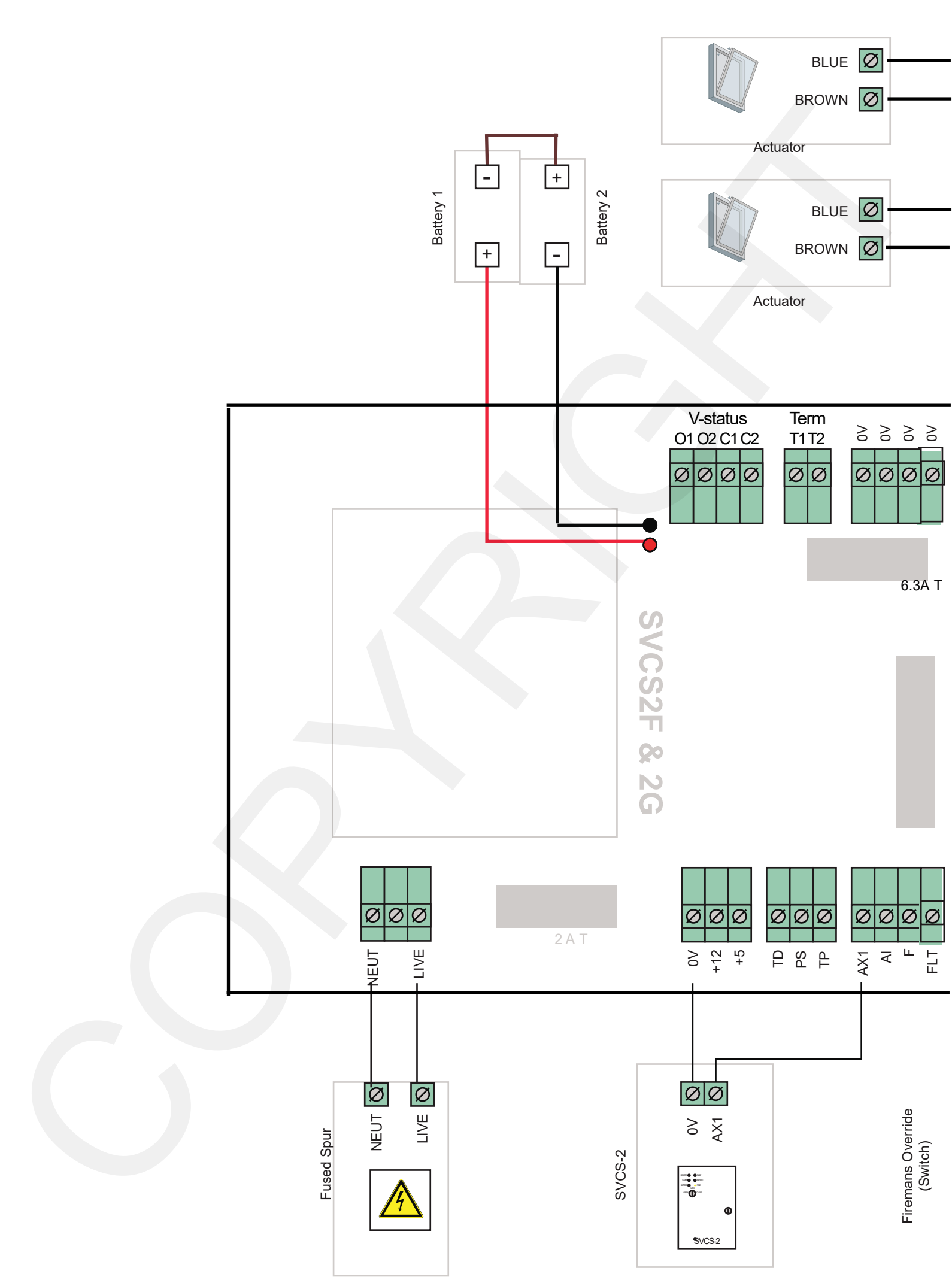
Batteries
Use these pre-wired cables to connect pair of batteries supplied with panel. Please see page 12 for more information.

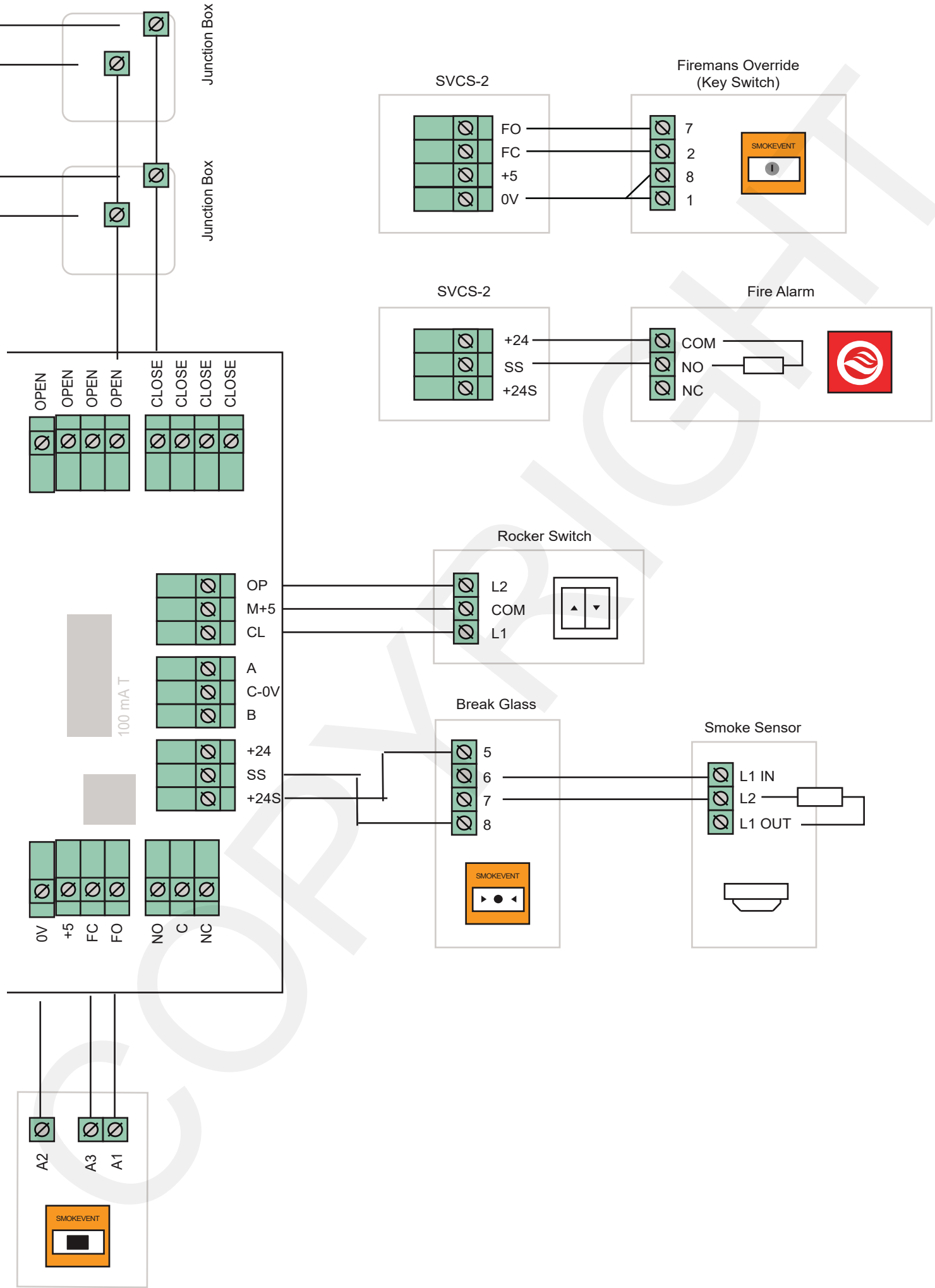
CONNECTIONS (i) SVCS-2F & 2G PCB



CONNECTIONS (ii)




BLUE
BROWN
Actuator
BLUE
BROWN
Actuator
Battery 1
Battery 2
V-status
O1 O2 C1 C2
Term
T1 T2
0V 0V 0V 0V
6.3A T
SVCS2F & 2G
2A T
NEUT
LIVE
0V
+12
+5
TD
PS
TP
AX1
AI
F
FLT
Fused Spur
NEUT
LIVE
SVCS-2
0V
AX1
SVCS-2
Firemans Override
(Switch)


Junction Box
Junction Box
SVCS-2
FO
FC
+5
0V
Firemans Override
(Key Switch)
7
2
8
1
SMOKEVENT
SVCS-2
+24
SS
+24S
Fire Alarm
COM
NO
NC
OPEN
OPEN
OPEN
OPEN
CLOSE
CLOSE
CLOSE
CLOSE
Rocker Switch
OP
M+5
CL
L2
COM
L1
A
C-0V
B
100 mA T
+24
SS
+24S
Break Glass
5
6
7
8
SMOKEVENT
Smoke Sensor
L1 IN
L2
L1 OUT
0V
+5
FC
FO
NO
C
NC
A2
A3
A1
SMOKEVENT

GENERAL BATTERY SET

When batteries are changed, the battery charger should be checked for voltage which should read approx. 27.3V, at 20 degrees C. if significantly different please contact technical helpline of your supplier.

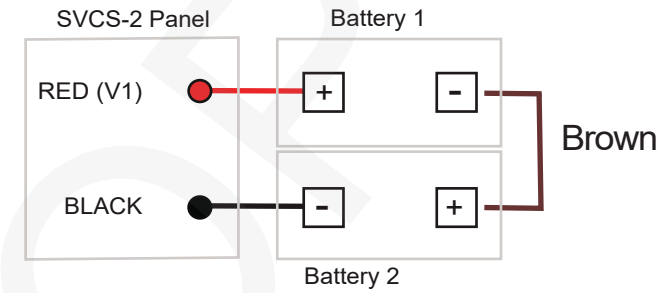
The SVCS2F is a 5 Amp output control panel.
There is a temperature sensor mounted on a flying lead which is to be located between the batteries this sensor adjusts the charger output to maintain the correct charging voltage.

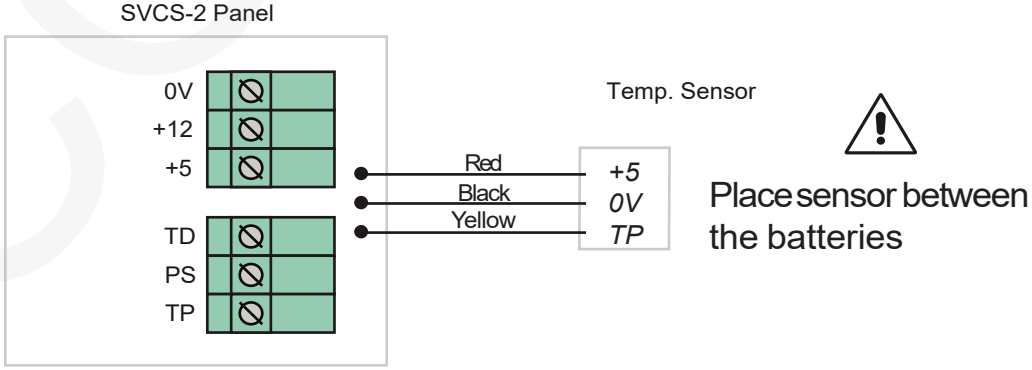
There are a number of conditions that can occur in the chemistry of batteries that can give erroneous indications by using simple voltage measurement techniques. The only sure way of testing capacity is with a known load over time and tracking the battery voltage over this time. If the batteries have been abused by discharging them to totally flat and kept in that condition for an extended period it is better to replace them as they are likely to be damaged and therefore may have a much reduced capacity.

This is a guide to the state of charge of the batteries measured Open Circuit, U3 temperature is a guide to whether the batteries are accepting a charge when connected.

VOLTAGE		STATE
27.3	Float Charge Voltage U3 Cool	Batteries trickle Charging fully charged
25-27.3	U3 Warm to hot	Batteries Charging + 50 – 95% charged
22.1-24.9	U3 Warm to hot	Batteries Charging + 10 - 49% charged
21-22	U3 Warm to hot	Batteries Charging + <10% charged
14-21.9	May need replacing	Batteries Charging + <5% charged
<14	WILL NEED REPLACING	Batteries Charging + <5% charged

BATTERY CONNECTIONS





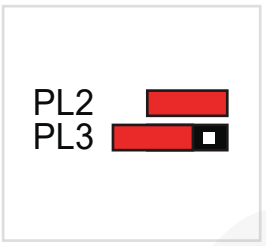
PROGRAMMING / INTERLINKING PANELS

To link SVCS-2 panels together a dedicated 2 core and earth cable should be used to connect the AX1 on one panel to the AX1 on the next panel. The 0V on one panel should be connected to the 0V on the next panel.

This procedure ensures that only one panel may operate at a time in accordance with the “Fire Compartmentalise” requirements.

If linking requires a panel to operate as a slave to the others, e.g. a stairwell roof vent, then add the spare jumper strap to the OPEN position on the board (PL3), should a panel wish to be removed from the interlinking then the BUS strap may be removed or simply disconnect the AX1 Connector. *The above cabling/strapping procedure is only required when an RS485 Network is* **not** *installed.*

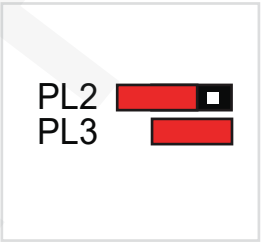
MASTER



Suitable for:

- Corridor vent
- Smoke shaft vent
- Lobby vent

SLAVE

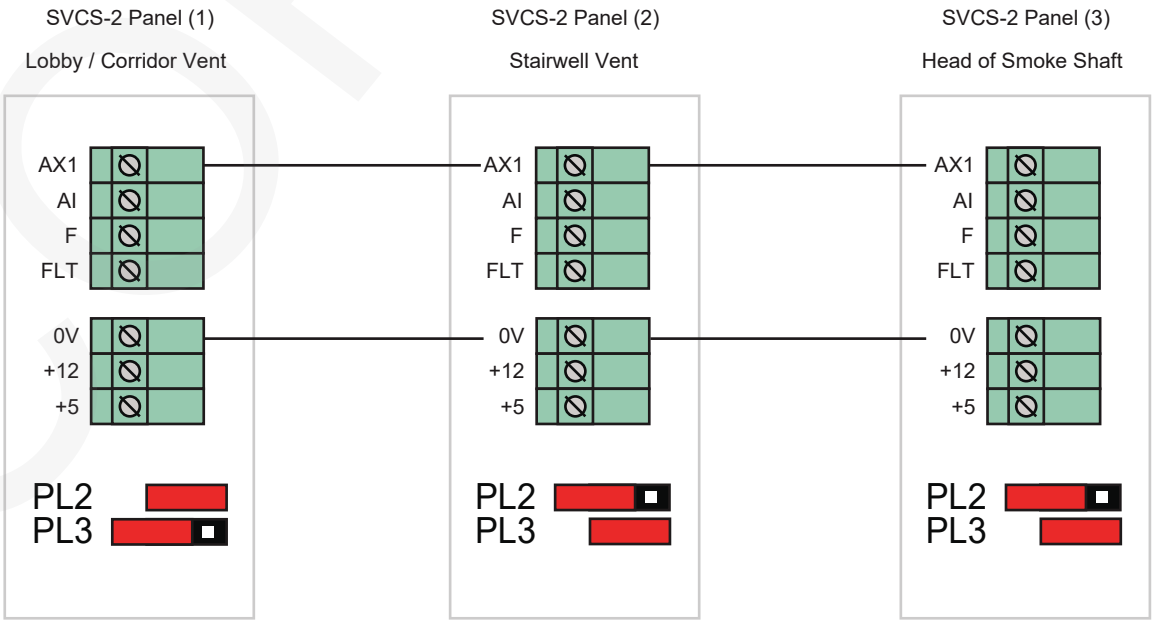


Suitable for:

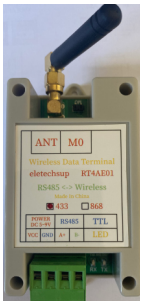
- Stairwell vent
- Head of smoke shaft

Note; The programming jumpers are only to be used when linking panels together. For single zone systems please use the ‘MASTER’ setup as above.

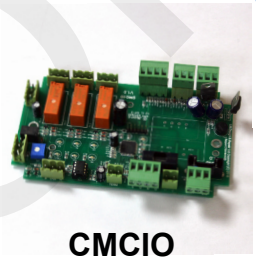
EXAMPLE SETUP FOR LINKING PANELS



PROGRAMMING / INTERLINKING PANELS



GSM-COMMS



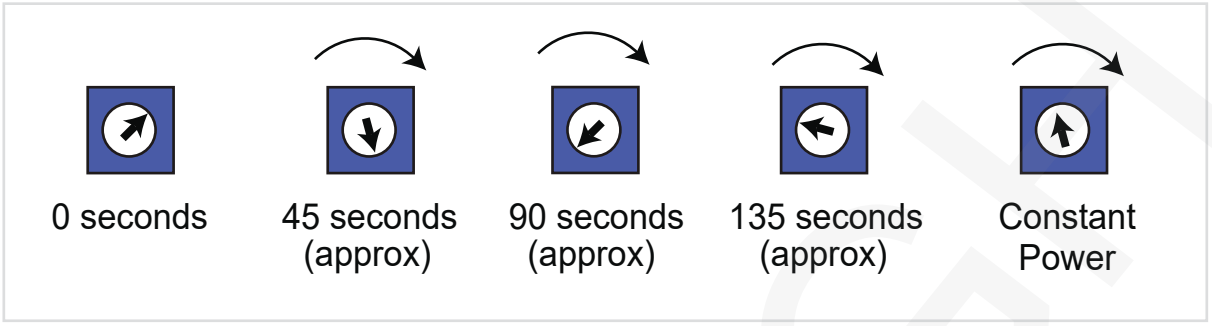
CMCIO

All devices, and more, illustrated above can be linked via a RS 485 communication network The **COMMSMASTER**, as illustrated above, is an HMI touch screen master control panel that can control up to 200 devices and allow the customer to monitor their system from a single point. plus remote alerting from **GSM mobile Communications**

For more details and training on network installation and operation, and other smoke Ventilation requirements and solutions contact us directly. 0121 286 0268

TIMER ADJUSTMENT

Cycle time can be adjusted between 5-180 seconds or no time-out by adjusting the blue potentiometer in the centre of the PCB above the 'FC' and 'FO' terminals thus;



If the timer is turned fully clockwise it will send constant power to the actuator/s. We only recommend this program for actuators that require constant power such as Belimo type actuators.

For standard actuators we recommend adjusting this to suit the time it takes the actuator to reach its full opening position (refer to actuator manual for details). Providing constant power to standard actuators can cause the actuator to malfunction.

The 'Opening' LED on the SVCS-2 will stay lit for as long as there is power to the actuator/s. If the actuator reaches its full opening position and the 'Opening' LED stays lit for a long period of time we recommend adjusting the timer to a period that is much closer to the time it takes the actuator to reach its full opening position.

Note; The 0 Second position may be used for testing the network without operating roof hatch actuators in inclement weather etc.

TESTING

By far the most important thing about the use of this type of equipment is REGULAR TESTING! *Please read Page 16 carefully*

Testing has two major functions.

A The smoke sensors, alarm panel and vents are fully tested.

B Like all mechanical equipment the Vent Actuator motors need to be used periodically so as to help prevent the build-up of internal corrosion and the likelihood of an associated seizure of the mechanical parts.

Weekly visual (5 minutes)

Go to the panel and check for any warning/fault indications. If there is a fault then call your local electrical engineer or call your supplier who will be pleased to help you.

Monthly test (15 minutes)

The Full Alarm testing should be carried out with the use of a "Smoke Aerosol". A 5-10 second spray at one of the smoke sensors will set off the alarm system. Each month choose a different smoke sensor. Whilst the alarm is active check that the appropriate Vents are open *in accordance with your cause and effect chart.* Reset the alarm condition (you may have to do this a couple of times if the sensor under test has not cleared the "smoke"). Next check that the manual key-switch will OPEN the Vents (if fitted). After this switch back to AUTO, check again that there no fault conditions and that concludes the test.

Annual

Once a year using a battery impedance tester to check the condition of the secondary power supply so that in the event of a fire the firemen have sufficient open and close cycles available for their use. This should be done by a specialist. Call your supplier for further information about annual service contracts.

TESTING SVCS2 models require bi-annual servicing

The following are guidance notes around the mandatory maintenance and testing requirements for both powered and natural smoke ventilation systems.

THE REGULATORY REFORM (FIRE SAFETY) ORDER 2005 states

Maintenance 17:- (1) Where necessary in order to safeguard the safety of relevant persons the responsible person must ensure that the premises and any facilities, equipment and devices provided in respect of the premises under this Order or, subject to paragraph (6), under any other enactment, including any enactment repealed or revoked by this Order, are subject to a suitable system of maintenance and are maintained in an efficient state, in efficient working order and in good repair.

BRITISH STANDARD BS 9999:2017 states:

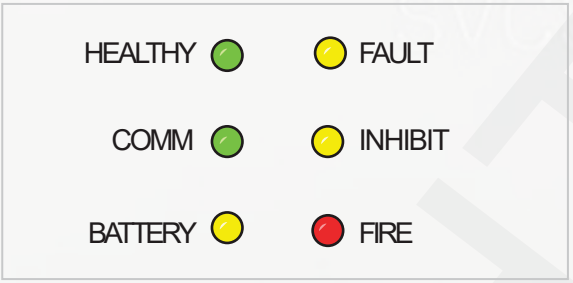
Annex I (normative) Routine inspection and maintenance of fire safety installations

I.1 General
NOTE Fire safety installations comprise the items and elements of which examples are listed in Annex K.
It is essential for the safety of the occupants of a building that fire safety equipment (including passive fire protection provisions) is inspected frequently. Although much of the inspection can be undertaken by suitably trained personnel, a formal agreement should be made with the installer or the installer's representative to provide the regular inspection and testing described in the relevant British Standards for individual fire safety installations. Unless temporary alternative fire safety systems can be put in place, it might be appropriate for certain of the inspections carried out at three-monthly or longer intervals to be done outside normal working hours.
I.2 Daily inspections
I.2.1 General
The checks described in I.2.2 to I.2.6 should be undertaken daily. For premises with defined opening times such as shops, theatres and cinemas, these checks should be undertaken prior to members of the public entering the building.
I.3 Weekly
I.3.1 General
In addition to the checks recommended in I.2, the checks described in I.3.3 to I 3.7 should be undertaken once a week.
I.3.5 Smoke control systems for means of escape
Actuation of the system should be simulated once a week. It should be ensured that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems), natural exhaust ventilators open, automatic smoke curtains move into position, etc.
I.4 Monthly
I.4.1 General
In addition to the checks recommended in I.2 and I.3, the checks described in I.4.2 to I.4.9 should be undertaken once a month.
I.5 Three-monthly
In addition to the checks recommended in I.2, I.3 and I.4, the actuation of all smoke control systems should be simulated once every three months. All zones should be separately tested and it should be ensured that any fans and powered exhaust ventilators operate correctly, smoke dampers close (or open in some systems), etc.
I.6 Six-monthly
I.6.1 General
In addition to the checks recommended in I.2, I.3, I.4 and I.5, the checks described in I.6.2 and I.6.3 should be undertaken once every six months. Arrangements should be made for six- monthly inspections and tests to be carried out by competent persons on the fire detection and alarm systems, the sprinkler systems, any extinguishing systems, the emergency and escape lighting systems and the fire-fighting lift, for any defects found to be logged and the necessary action taken, and for certificates of testing to be obtained.
I.7 Yearly
NOTE Attention is drawn to the testing and inspection requirements of BS 7671.
In addition to the checks recommended in I.2, I.3, I.4, I.5 and I.6, arrangements should be made for annual inspections and tests of the following to be carried out by competent persons, for any defects to be logged and the necessary action taken, and for certificates of testing to be obtained:
e) smoke ventilators and smoke control systems;

Whilst this is a comprehensive assessment (and is for general guidance only), it should be noted that manufacturers have their own maintenance and testing requirements and if different these should be followed. For full guidance you should read the Regulatory Reform Order 2005 along with BS9999 to satisfy that you are meeting your statutory obligations.

LED INDICATORS SVCS2F

KEY - LED indicators on front of cabinet door.



NORMAL FUNCTIONS

(System OK LED is illuminated)

FAULT INDICATOR	FAULT
No Sound HEALTHY LED illuminated.	Power On, System OK.
FIRE LED illuminated and continuous buzzer sounds.	The SS pin has been activated or the Network has issued a fire override OPEN command.
FIRE LED illuminated and Rapid 2 tone sound.	Firemans override switch operated to OPEN.
FIRE LED not illuminated and Rapid 2 tone sound.	Firemans override switch operated to CLOSE.
COMM LED very short flash.	A communication event occurred.

WARNINGS & STATUS INFORMATION

(System OK LED is illuminated)

WARNINGS	STATUS
Intermittent buzzer & INHIBIT LED.	Panel is disabled either locally or via the Network.
BATTERY LED flashing.	The batteries are low in charge but are charging.

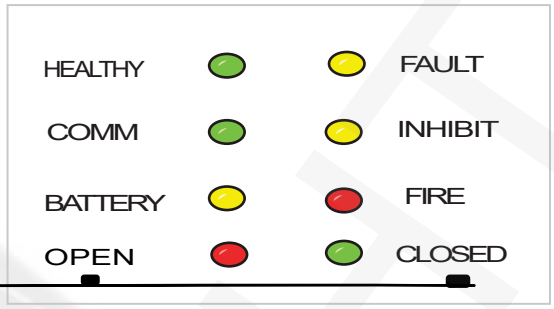
FAULT INDICATORS

(System OK LED **not** illuminated and FAULT relay activated)

FAULT INDICATOR	FAULT
One bleep at 8 second intervals.	Mains Power failure or FS1 blown (2A T) or batteries drawing excess charging current.
2 Bleeps + 2 Flashes of FAULT LED.	Terminating resistor not connected or FS4 blown (125mA T).
3 Bleeps + 3 Flashes of FAULT LED.	Actuator Terminating resistor not connected or Term Module missing
4 Bleeps + FAULT and BATTERY LED at 8 second intervals.	Battery set very low charge or un-serviceable or FS3 blown (6.3A T)
10 bleeps + FAULT LED.	Internal program checksum error.

LED INDICATORS - SVCS2G

KEY - LED indicators on front of cabinet door.



NORMAL FUNCTIONS

(System OK LED is illuminated)

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No Sound HEALTHY LED illuminated ■	Power On, System OK.
FIRE LED illuminated and continuous buzzer sounds ■	The SS pin has been activated or the Network has issued a fire override OPEN command ■
FIRE LED illuminated and Rapid 2 tone sound ■	Firemans override switch operated to OPEN ■
FIRE LED not illuminated and Rapid 2 tone sound.	Firemans override switch operated to CLOSE.
COMM LED very short flash.	A communication event occurred.
N/A	N/A
N/A	N/A

WARNINGS & STATUS INFORMATION

(System OK LED is illuminated)

WARNINGS	STATUS
Intermittent buzzer & INHIBIT LED.	Panel is disabled either locally or via the Network.
BATTERY LED flashing.	The batteries are low in charge but are charging.

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10 bleeps + FAULT LED.	Internal program checksum error.

MAINTENANCE

CONTROL PANEL

Control Panel should be maintenance free with the exception of the Batteries.

BATTERIES

Between 3 to 5 years the backup batteries will need to be changed.

SENSORS, SWITCHES & ACTUATORS

Refer to individual instructions for any attached components of this system.
If you are in any doubt about any of the above procedures etc. then do give us a call and we will help you.

The above maintenance & testing should be entered into a log with the sensor number (or floor level), date of testing and signed.

These are purely our recommendations and we would advise you to contact your local fire officer who will only be too pleased to analyse the building and give their own recommendations as to testing etc.

SVCS- 2G Model - Dimensions

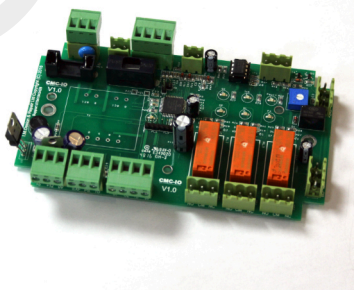
SVCS - 2F MODEL - Dimensions

Width 260mm approx

Depth 120mm approx

Height 305mm approx

Other Smoke Ventilation Products



For more details and training on network installation and operation, and other smoke Ventilation requirements and solutions contact us directly. 0121 286 0268

UK CA

0086

Smoke Ventilation Controls Ltd Redditch, Worcestershire

16

CERTIFICATE NUMBER 0086 CPR 755423

EN12101-10

Product Name: SVCS2F & SVCS2G

Electrical power supply equipment, intended to be used in smoke and heat control systems

Operational Class: A

Max Battery capacity 5 A/H

Output Current: (max b) 5 Amps

Input: 230V single phase 50 Hz

Output: 19 to 29.5 Volts DC

Additional: (self-certification method)

EMC EN55014

LVD EN50130

Relevant Parts of: BS5839 & EN54-2