SmokeCloak

VALI Range Manual

INSTALLATION AND OPERATING INSTRUCTION

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READ AND SAVE THESE INSTRUCTIONS

Conventions

The following symbols are used in this manual to help you install the SmokeCloak system correctly and safely.

NOTE

Gives useful advice or suggestions to enhance the performance of the SmokeCloak system.

IMPORTANT

Indicates important information that is critical for the correct use of your products and must always be read carefully.

IMPORTANT

It is essential that only genuine SmokeCloak fluid is used. Damage to the equipment and possible health hazard is likely if incorrect fluid is used. The warranty on all of the equipment will also be void.

Under no circumstances should the on board power supplies of the SmokeCloak (terminals 1, 6, 19, and 20) be linked to any other 3rd party equipment e.g. alarm panels, additional power supplies, etc. as this could cause unexpected faults within the machines.

Contents

Product Overview

Strong Background

The new VALI range is the next generation of security machines from SmokeCloak. Following the success of the current range of IPS, IPX and System machines, the VALI range joins the family and builds on the principles that made these machines successful, whilst at the same time introducing new technology and functionality to push these machines to the next level.

Powerful

The addition of the V5, V10 and V20 to the SmokeCloak range offers a new level of raw power in terms of the amount of output these units are able to produce. Whilst also being the slimmest and sleekest machines to be produced to date, this makes them perfect for any application, be that an office requiring a professional yet discreet look, or a retail outlet requiring lightning quick response time and maximum protection.

Simplicity

From the new 'engineer friendly' mounting system to the onboard USB interface – the design of the VALI range is focused on ease of installation, ease of use, monitoring for the customer and greater serviceability.

Versatility

As well as the mix of explosive output and sleek looks, the VALI range can also be customized to suit any installation. The inclusion of a new interchangeable nozzle system means the machine is far more versatile in terms of where it can be positioned within a room and also the type of coverage it can provide within that space.

In The Box

Before attempting to install the machine it is advisable to ensure that you have all the required components. Upon opening your VALI box you should find:

x1 off VALI unit (V5/V10/V20) Check serial labels to ensure the correct voltage

x1 off Grille Plate Assembly

x1 off Installation Bracket

x1 off Manual pack

- Manual
- Warning stickers
- CD Rom
- End user guide

x1 off Accessory Pack

- Straight nozzle insert
- 30 degree nozzle insert
- 3-way nozzle insert
- Circlip (x2 off)
- M4x10 black taptite screws (x4 off)
- M6x12 black pozi screws (x4 off)

x1 off Cloaksensor (CS07A)

In addition to the above items you will also need **2x 1.2 Ah 12 V batteries**. These can be purchased from MSS Professional A/S.

In addition, the following specialist tools will also be required: **Internal Circlip Pliers (20 mm)**

Quick Start Guide

To quickly prepare and fire your unit, the following steps should be taken. For more detail on anything below, see the full guide provided.

1. Remove the machine, installation bracket and any other accessories provided from the box.

2. Mount the installation bracket to a suitable surface and feed the mains wiring and control wiring through the grommet bushes provided.

3. Remove the 6 plastic blanking caps from either side of the machine, unscrew the side covers, remove the earth leads and the test button wire. This should allow removal of the side covers.

4. Release the quick connect coupler and the fluid sensor wire, then carefully remove the fluid container.

5. Hook the machine onto the installation bracket (offer back against the bracket – you should feel it latch into it locked position.)

6. Use the 4 screws provided to secure the machine in position. Use the x4 M4 taptites to attach the grille plate to the front of the machine.

7. Install the fluid cap arrangement within the bottle ensuring the correct orientation, then re-install the fluid container within the machine.

8. Plug in the battery connectors, and then attach the control wires to headers PL1, PL2, PL3 and PL4 on the interface board. (Pin arrangements the same as the system thousand series.)

9. Ensure all earth wires are correctly re-installed. Replace both the side covers, screw them into position and replace the blanking caps. Machine should now be ready to fire.

Specification

	V5	V10	V20
Dimensions (mm)	438 x 340 x 176	438 x 340 x 176	488 x 340 x 176
Weight (install)	11.65 kg	11.65 kg	14.1 kg
Weight (shipped)	21.2 kg + box	21.2 kg + box	24.3 kg
Weight (hanging)	20.15 kg	20.15 kg	23.15 kg
Performance	210m3 in 30 s	405m3 in 30 s	600m3 in 30 s
Reaction Time	0.5 s	0.5 s	0.5 s
Fluid Consumption	90ml in 30 s	175ml in 30 s	260ml in 30 s
Standard Colour	RAL 7035 / RAL 7024	RAL 7035 / RAL 7024	RAL 7035 / RAL 7024
Mounting	Vertical or Horizontal	Vertical or Horizontal	Vertical or Horizontal
Fluid Reservoir	1.7 L	1.7 L	1.7 L
Heat up Time (Rdy)	9 minutes (110 V) 10 minutes, 30 s (208) 9 minutes (230 V)	9 minutes (110 V) 10 minutes, 45 s (208) 9 minutes (230 V)	10 minutes (110 V) 11 minutes (208) 9 minutes (230 V)
Heat up Time (Full)	14 minutes (110 V) 17 minutes (208 V) 14 minutes (230 V)	16 minutes 110 V) 19 minutes, 20 s (208 V) 16 minutes (230 V)	15 minutes (110 V) 15minutes 45 s (208 V) 13 minutes (240 V)
Timer	Adjustable	Adjustable	Adjustable
Voltage	230 V, 208 V, 110 V Available	230 V, 208 V, 110 V Available	230 V, 208 V, 110 V Available
Heat Power 110 V	2 x 700 W	2 x 700 W	2 x 850 W
Heat Power 208/230 V	2 x 700 W	2 x 700 W	2 x 950 W
Power Consumption at 230 V (max)	1.45 KW	1.45 KW	2.0 KW
Power Consumption at 208 V (max)	1.2 KW	1.2 KW	1.65 KW
Power Consumption at 110 V (max)	1.45 KW	1.45 KW	1.8 KW
Standby Power Consumption	78 W	85 W	105 W
Current Draw at 230 V (max)	6.4 A	6.4 A	8.85 A
Current Draw at 208 V (max)	5.8 A	5.8 A	7.8 A
Current Draw at 110 V (max)	12.1 A	12.1 A	15 A
Pumps	x1 24 V solidstate, variable output,	x1 24 V solidstate, variable output,	x2 24 V solidstate, variable output,

Weight (Install) Represents the weight of the machine, without the covers on, and without the batteries or any fluid installed.

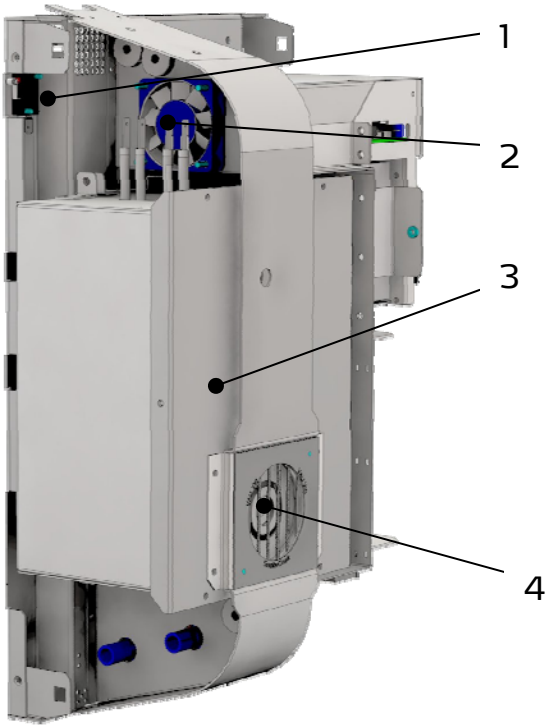
Weight (Shipped) Represents the weight of the machine packed within its box

Weight (Hanging) Represents the weight of the machine, in its armed state hanging on a wall. That includes covers, Batteries and a full container of fluid.

Heat-up time (rdy) The figure given is a time to 'ready' state at an ambient temperature of 20°C

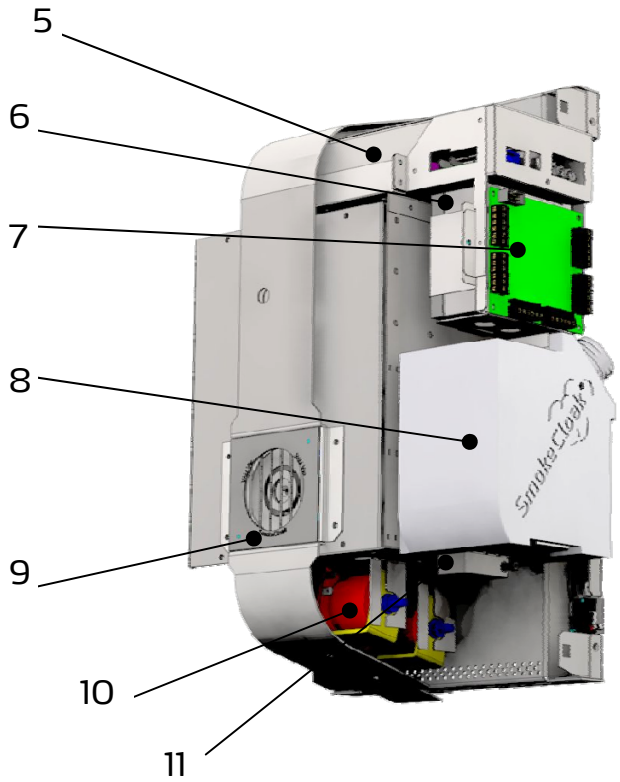
Heat-up time (full) The figure given is a time to full temperature at an ambient temperature of 20°C

Machine Layout



1. tamper switch
2. cooling fan
3. heat exchanger
4. output nozzle

5. electronics module
   (containing main power board)
6. batteries
7. interface PCB
8. fluid container
9. grille plate
10. pump (s)
11. changeover valve



Prior to Installation

Requirements - UK installations.

In the UK the installation must be carried out to conform with British Standard BS7939:1999 for the installation and maintenance of Smoke Security Devices.

BS7939 installation requirements summary

The installer should, prior to the installation liaise with the local fire authority to ensure that there are no local restrictions in force.

The installation should only be conducted by trained personnel who have passed a written test.

The SmokeCloak should be configured so that it can only activate when the burglar alarm is set. The SmokeCloak must not be configured to form a “man-trap” i.e. activate to cut off a means of escape.

The SmokeCloak should not be installed to cover escape routes and staircases of areas that are still occupied. Care should be given not to fog joint access areas of adjoining premises. In multi-occupancy buildings or in large sites with internally SmokeCloak protected areas, the vapour must be confined to those areas and must not be allowed to infringe into public or open areas.

Care must be given to automatic fire alarm systems so as not to cause unwanted or false activations.

Consideration should be given to audible and visual indication of SmokeCloak activation.

The installer should inform the fire brigade, police and monitoring station of the installation prior to commissioning. A full test activation should be performed as part of the installation.

For installations outside the UK, please adhere to local standards

Installation

The VALI can be installed vertically for wall mounting, or alternatively mounted horizontally for ceiling installations. The VALI's fluid container design means that no modifications are required when changing between horizontal and vertical mountings.

IMPORTANT

THIS EQUIPMENT SHOULD ONLY BE INSTALLED AND CONNECTED TO THE SUPPLY BY A SUITABLY SKILLED AND COMPETENT PERSON.

THIS APPARATUS MUST BE EARTHED. CONNECTIONS ARE MADE TO A PLUG-IN TERMINAL BLOCK. THE SMOKECLOAK SHOULD BE CONNECTED TO A STANDARD 13 AMP FUSED SPUR.

FLEXIBLE MAINS CABLES MUST HAVE A MINIMUM CROSS-SECTION AREA OF 1.25 mm^2 (AND MUST BE BASEC APPROVED IN THE UK). ENSURE THAT THE PROTECTIVE EARTH CONDUCTOR IS MADE LONGER THAN THE LIVE AND NEUTRAL CONDUCTORS, AND THAT THE CABLE CLAMP GRIPS BOTH THE SHEATH AND INSULATION.

Torque Settings

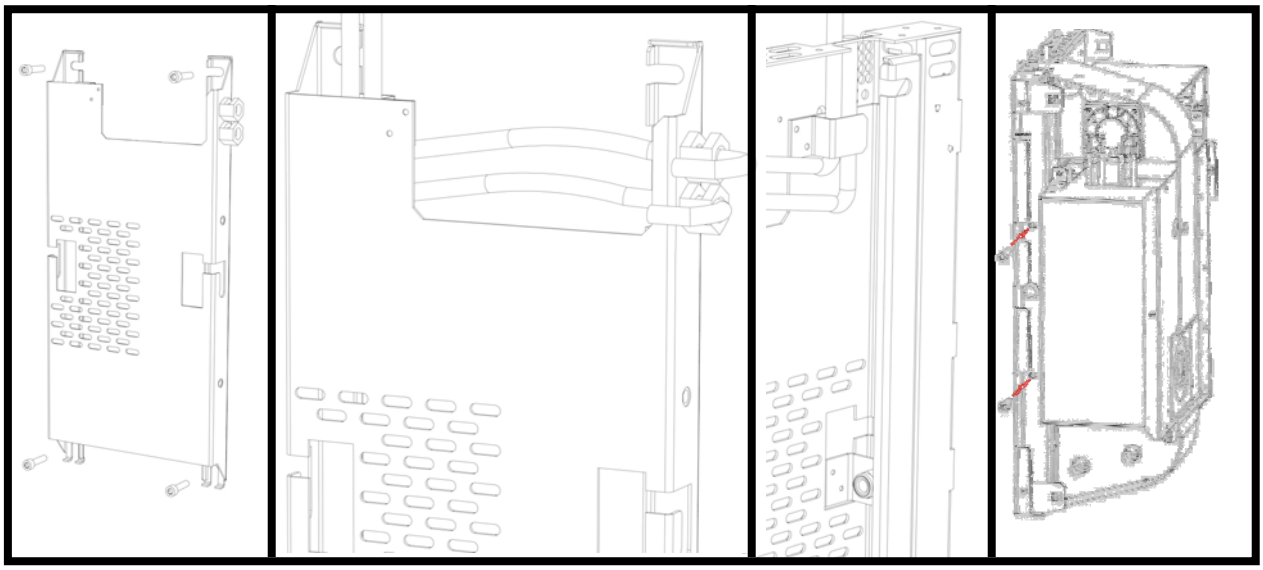
In order to avoid damaging some of the internal fixings and components it is important that the specified torque settings are not exceeded.

Unless otherwise stated within this manual, the maximum torque to be used for all fixings within the VALI machine should be **1.2 Nm**

Mounting the machine

Wall Installation

1. Screw the installation bracket to the wall as shown.
2. Ensure that the cables are routed through the brackets and fed through the grommet bushes. The access hole in the installation bracket should allow the cables to be easily fed into position.
3. Offer the machine into place and push back until you feel it slide into position.
4. Use the 4 fixing points to secure the machine in position.



IMPORTANT

IT IS NOT RECOMMENDED TO INSTALL THE MACHINE IN EXCESS OF 2.5 M HIGH, OTHERWISE THE SMOKE COVERAGE NEAR THE FLOOR MAY BE COMPROMISED. IT IS RECOMMENDED THAT THE ANGLED NOZZLE OR THE 3-WAY NOZZLE ACCESSORY IS USED IN CASES WHERE THE MACHINE IS TO BE INSTALLED HIGH ON A WALL TO MAXIMIZE THE COVERAGE OF THE EFFECT AT GROUND LEVEL. (SEE PAGE 14)

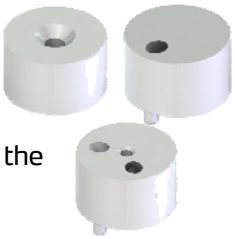
Horizontal Installation

Principally the same 4 steps are followed for a ceiling installation:

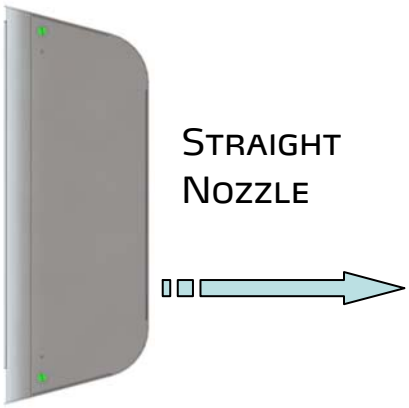
1. Screw the installation bracket into position on the ceiling or with the roofing system, alternatively 6 mm threaded hanging bars can be used. These should be located on the slots at the ends of the hanging bracket and tightly fastened into position.
2. Route the cables into position and secure using the grommet bushes.
3. Offer the machine up to the bracket and latch it onto the slot detail on the installation bracket. Slide the machine to the back of the slot, where it should drop into position.
4. Use the 4 fixing points to secure the machine in position against the installation bracket. Ensure the recommended maximum torque levels are not exceeded.
5. Follow the instructions for wiring and connecting the machine.

Ensure the machine is no more than 3 m above the floor, otherwise smoke dispersal may be compromised.
Leave sufficient room (at least 10 cm) above and around the side panels or it will not be possible to remove/fit the securing bolts and case screws.

Choosing and changing the nozzle



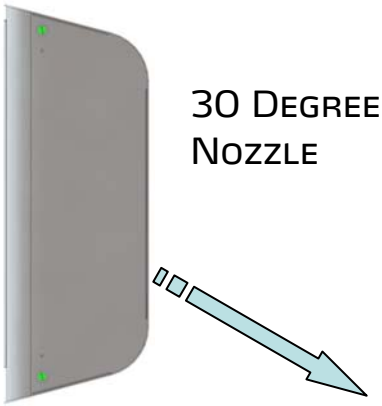
The VALI V5, V10 and V20 will all come as standard with no nozzle installed. It is the job of the installer to assess, install and test which of the three nozzles supplied should be used in order to ensure that the machine is best suited to the particular installation.



Straight Nozzle

Provides a single powerful burst directed perpendicular to the front of the machine.

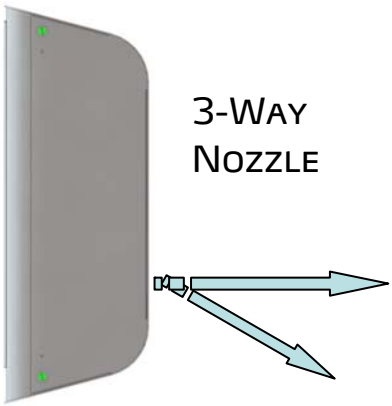
Note: when installing this nozzle it should be orientated as shown - with the flared edge facing outward.



30-Degree Nozzle

Provides a single powerful burst directed at 30° to the front plane of the machine.

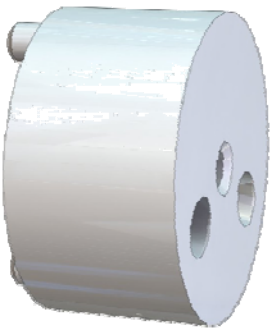
Note: by changing the orientation of the nozzle the effect can be projected in varying directions.



3-Way Nozzle

Provides a distributed effect. 75% of the effect is fired through the outer 2 holes to cover an area close to the machine (ideal for smaller rooms) The remaining effect is fired through the central hole giving a good mix of throw and distribution.

Note: by changing the orientation of the nozzle the effect can be projected in varying directions



Installing the correct nozzle for the first time:

1. By making a quick assessment of the area to be protected by the SmokeCloak, decide which of the three available standard nozzles should be used. You can see examples on the previous page.
2. Remove the warning label from behind the vertical strap by pulling it from one side.
3. Take the required nozzle from the accessory pack provided and install it within the nozzle body.
4. Take the circlip provided and using a pair of internal circlip pliers, engage the circlip into the ridge running around the inside of the nozzle body. It is crucial this is installed correctly in order to retain the nozzle safely.
5. Once the nozzle is correctly engaged, install the grille plate. This is done by offering it into position then using the 4x black taptite screws found in the accessory pack, to secure it. It is important that the suggested torque settings are adhered to.
6. Follow the test procedure.

IMPORTANT

TAKE GREAT CAUTION WHEN CHANGING THE NOZZLE, IT BECOMES EXTREMELY HOT AS THE MACHINE HEATS UP. DO NOT ATTEMPT TO HANDLE THE NOZZLE ONCE THE MACHINE HAS HEATED UP TO TEMPERATURE.

In order to change the nozzle:

1. Remove both side covers from the machine.
2. Remove the 4 screws that secure the grille plate in position, and remove grille plate.
3. Using a pair of internal circlip pliers, remove the circlip, taking care not to lose the circlip. NOTE – this part can become very hot whilst the machine is powered up.
4. It should then be possible to remove the insert. The best way is to use a terminal screwdriver, insert it into the output hole and gently prise out the insert.
5. Replace with the chosen nozzle, when using the 30 degree or 3-way nozzles use the pegs on the bottom to ensure the desired orientation is achieved, and then re-install the circlip ensuring it snaps firmly into position.
6. Replace both the grille plate and the side covers. Ensure the recommended torque settings are adhered to when reinstalling these parts.

FOLLOWING ANY INSTALLATION OR CHANGING OF THE NOZZLE – ENSURE THAT A TEST FIRING IS CARRIED OUT TO ENSURE THAT THE NEW NOZZLE HAS BEEN CORRECTLY AND SAFELY INSTALLED. WHEN PERFORMING THIS FIRST TEST FIRING INSURE THAT THE GRILLE PLATE IS INSTALLED CORRECTLY AND EVERYBODY IS STANDING BACK FROM THE FRONT OF THE MACHINE.

Fluid

FL600-V fluid is used to generate the vapour cloud. This glycol based fluid is made to a special formula, which is designed to produce 40% obscuration of light at 40 cm with minimum condensation.

Installing the Fluid Bottle

Your VALI product will be supplied with a full fluid container installed. It will arrive with a sealed travel cap installed. The following steps should be taken in order to correctly install the fluid bottle and the fluid sensing unit.

1. Release the fluid line coupler by retracting the main body of the fitting, you should hear a click and feel the quick release coupler split apart.
2. Remove the wire coming from the fluid level sensor at the electronics module. (marked 'fluid sensor input')
3. This should allow you to remove the sensor unit from the machine.
4. Next remove the fluid bottle from the machine, remove the protective plastic bag and discard.
5. The travel cap should then be removed from the bottle and discarded.
6. Slide the fluid sensor assembly inside the bottle, whilst supporting the fluid feed pipe and the sensor wire – screw down the cap tightly to create a seal.
7. The bottle can then be slid back into position within the machine.
8. Replace both the fluid sensor wire and the quick release fluid line coupler ensuring that it 'snaps' firmly back into its engaged position.
9. It is recommended that following any installation of the bottle a short test fire is carried out to ensure the fluid line has been correctly re-installed and to re-prime the fluid feed lines.

IMPORTANT

It is essential that only genuine SmokeCloak fluid is used. Damage to the equipment and a possible health hazard is likely if incorrect fluid is used. The warranty on all of the equipment will also be void

Changing the Fluid

As part of the maintenance of the VALI it is essential that the fluid is replaced annually to ensure that the quality of the effect produced is maintained at the desired level.

In order to change the fluid follow the same instructions in the previous section for installing the fluid bottle, once removed.

Discard the empty fluid container and replace with a new full bottle of fluid.

IMPORTANT

The fluid should be changed (not topped up) at least once a year. Do not mix batches of fluid. (Batch number is printed on the front of the bottle).

Take care not to overfill the bottle – it could potentially lead to electric shock.

Priming the machine

Following either the initial installation of the fluid bottle or following changing of the bottle it is essential that a short test firing is carried out to ensure that the fluid feed pipes are correctly primed. Failure to follow this procedure will lead to delayed response time the first time the machine is fired following the service or, more significantly, a failure to observe a connection fault incurred during the installation or re-installation of the fluid bottle.

This should be done using the manual test button on the side of the machine, with the machine in SAI (Service Active Input) mode. See page 51.

During the test firing, observe the output to ensure the level is satisfactory before leaving the machine.

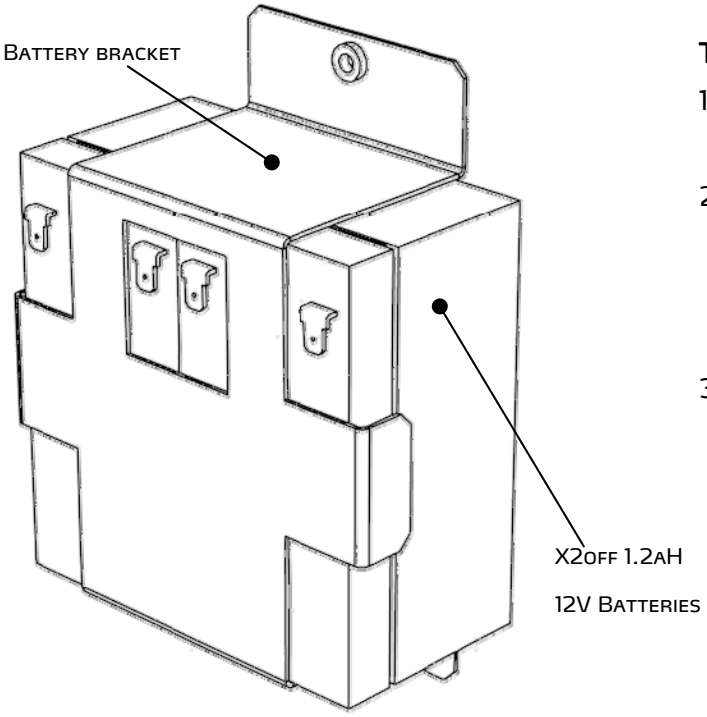
If the level appears to be below what would normally be expected of the machine, repeat the test process. If after 3 test cycles the output still appears to be below the 'regular' level of effect check the following:

1. The quick release coupler between the fluid line and the bottle cap was correctly re-engaged.
2. The fluid cap was correctly re-engaged into the bottle, that the fluid feed pipe wasn't trapped in any way, and that the cap was firmly screwed back into position.
3. If there still appears to be a problem contact your supplier.

Batteries

The battery backup system provides power for the control electronics and pumps when mains electricity is removed.

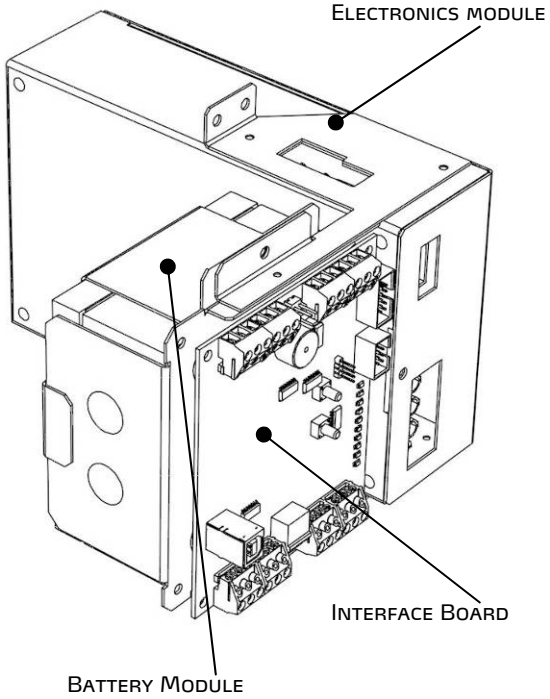
It is necessary that batteries are installed for correct operation. The batteries are installed on a dedicated bracket which is found behind the interface board:



To install the batteries:

1. Remove the two M4 screws that retain the battery bracket.
2. Place the batteries into the bracket as shown to the left. Remove the plastic terminal covers from the battery terminals.
3. Follow the instructions for wiring up the batteries. (see page 22). The final two connections onto the power board should not be made at this point.
4. The bracket, complete with batteries should then be slid back into position behind the interface board.
5. The battery assembly should be re-secured using the M4 screws provided. (observe torque settings)
6. Complete the wiring by making the connections to the power board. Carefully observe the polarity (see page 23 for details).

It should be noted that for installs where the batteries can not be slid out through the front of the machine – by detaching the electronics module and sliding it forward – the battery assembly will slide in or out through the back of the machine.



The standard backup system does not provide power for the heater. The insulation is designed to retain sufficient heat in the aluminium heat exchanger assembly.

IMPORTANT

THE SMOKECLOAK MUST HAVE THE BATTERIES INSTALLED, EVEN WHEN OPERATING FROM THE MAINS,

THE BATTERY BACKUP SYSTEM REQUIRES 24 V D.C. - IT IS NECESSARY TO FIT TWO 12 V 1.2 AH BATTERIES IN SERIES IN THE SMOKECLOAK. DO NOT USE LARGER THAN 1.2 AH CAPACITY BATTERIES TO PREVENT FUSE FAILURE DUE TO EXCESSIVE CHARGING CURRENT.

PLEASE NOTE THAT THE TEMPERATURE INSIDE THE SMOKECLOAK CAN EXCEED 40 DEGREES DEPENDING ON THE AMBIENT TEMPERATURE - THE BATTERIES MUST BE ABLE TO WITHSTAND THIS TEMPERATURE UNDER CHARGING.

Take care with polarity. The SmokeCloak is protected with an auto-reset fuse (F2) to safeguard against reverse polarity connection of the batteries. The LEDs on the interface board will give indication of correctly installed fluid and batteries.

IMPORTANT

PCB DAMAGE DUE TO INCORRECTLY FITTED/SIZED BATTERIES IS NOT COVERED UNDER WARRANTY.

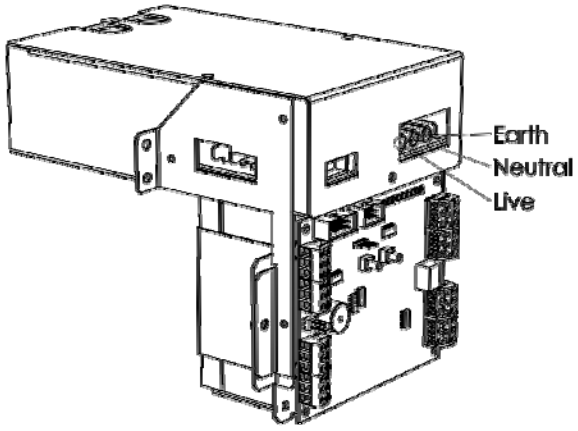
MSS PROFESSIONAL STRONGLY RECOMMENDS THAT FIAMM 1.2 AH BATTERIES ARE FITTED. THESE CAN BE PURCHASED FROM MSS THROUGH YOUR DISTRIBUTOR.

Wiring up the Machine

The mains power and low voltage control signals are clamped to the installation bracket using the cable clamps provided. The cables should be routed through the cable guide provided on the back face of the bracket, then fed through the cable clamps (see page 13) and terminated with the supplied plugs. Lead lengths between the clamps and plugs should be a maximum of 30 cm.

Wiring the mains feed

Remove the mains plug from the electronics module and fit to the flexible mains cable that has been fed through the cable grommets. Plug mains lead back into motherboard. Observe connection polarity (see below).



IMPORTANT

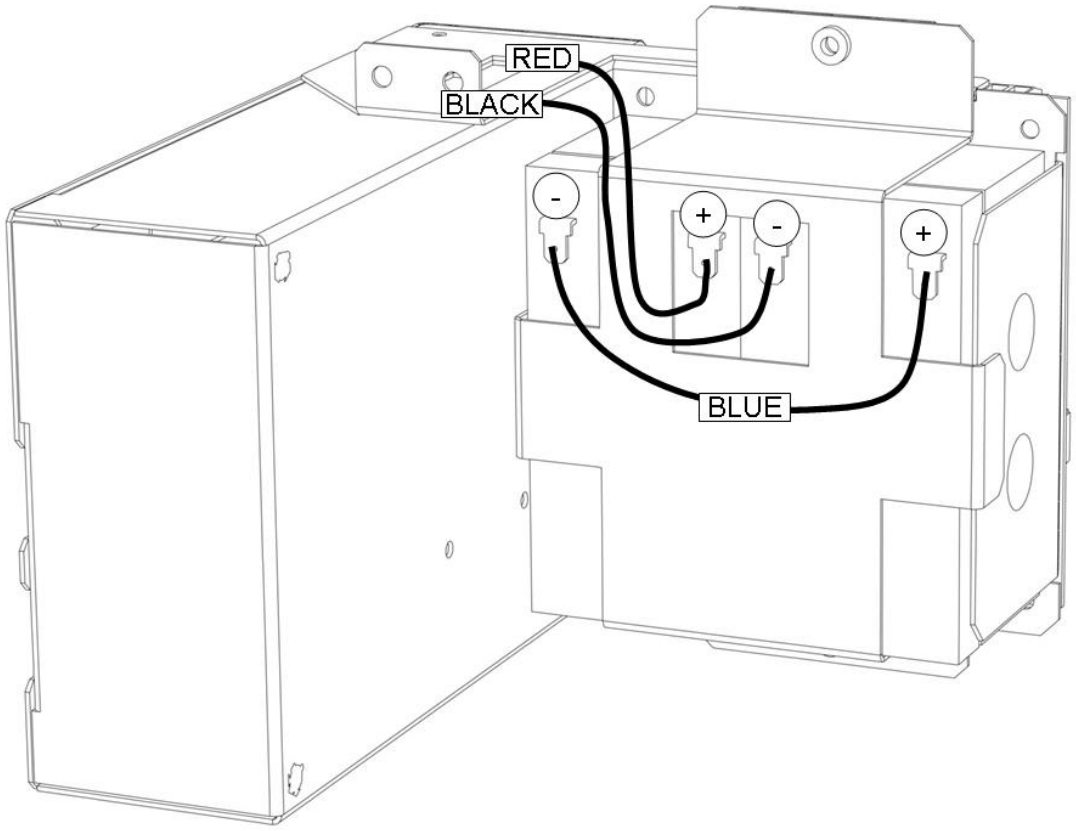
110 V / 208 V VERSIONS

THE TERMINAL BLOCK SITUATED ON THE MAIN POWER PCB IS INTENDED TO BE USED WITH NRTL (NATIONALLY RECOGNISED TESTING LABORATORY) LISTED PRESSURE TERMINAL CONNECTORS. THESE MUST BE FITTED ON THE END OF THE CONDUCTORS BEFORE ATTACHMENT TO THE WIRING TERMINALS OF THE TERMINAL BLOCK IN ORDER TO MAINTAIN THE MACHINES ETL APPROVAL. IF IN DOUBT, CONTACT MSS PROFESSIONAL.

Wiring the batteries

Once the batteries are installed within the bracket provided they must then be wired together in series and also into the power board.

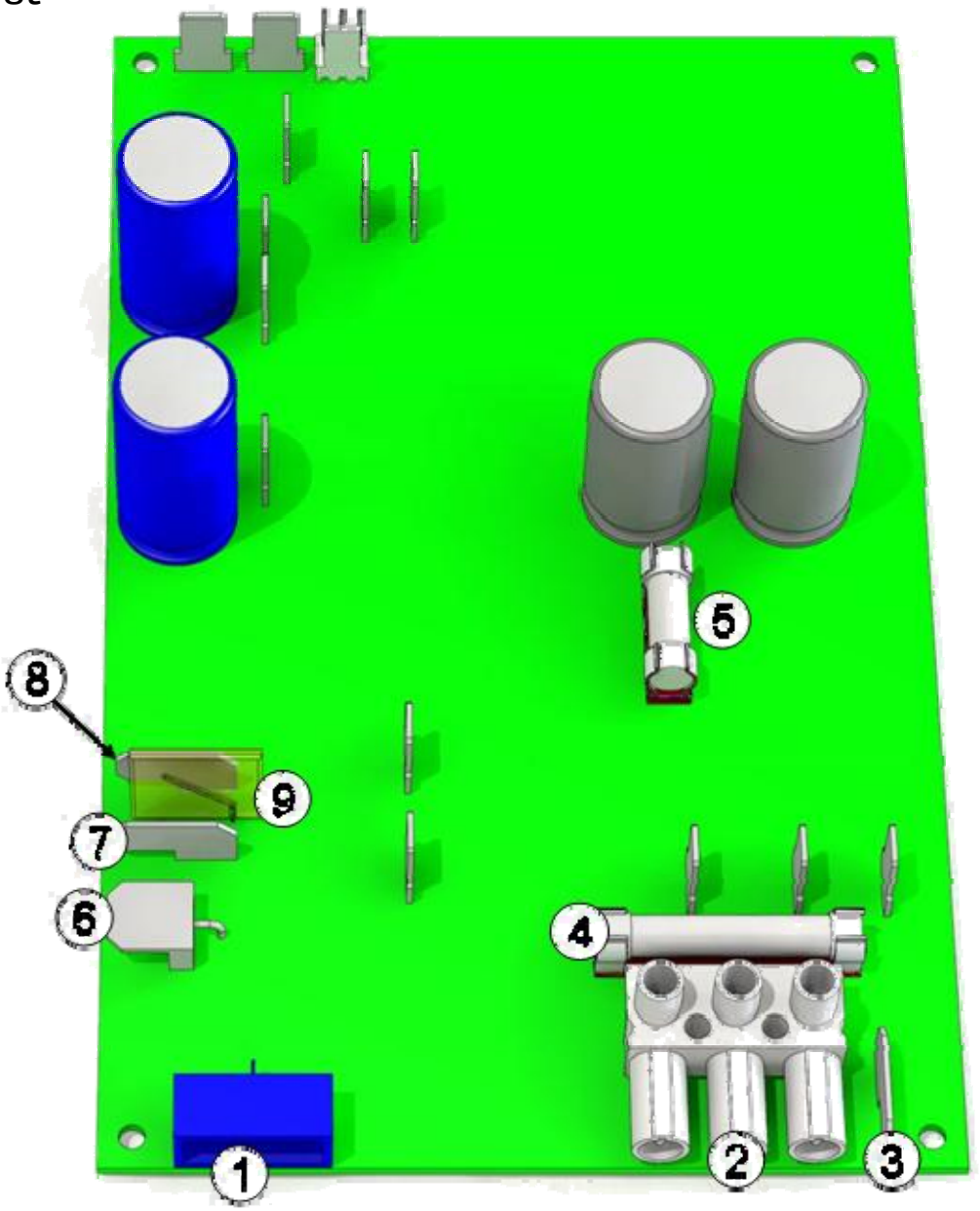
Follow the instructions below – The battery loom provided should be used. It will contain a single blue wire used for linking the batteries in series and in addition a red and a black wire for connecting the wires back to the power board.



The red wire should be terminated at PL22 on the power board and the black wire at PL21. For details on this see powerboard connections details – page25/27. The terminals should also be labeled " + and – " with the red wire being " + " and the black wire " – ".

Power Board

Layout



1. SPI Connection
2. Mains Power inlet
3. Earthing Point
4. Fuse F1 (mains supply)
5. Fuse F3 (24 V power supply)
6. Fluid sensor terminal
7. Battery terminal +
8. Battery terminal -
9. Fuse F2 (battery circuit)

Fuse Values

VALI V5/V10

Fuse F1

110 V	-	15 A (HBC)
208 V	-	10 A (HBC)
230 V	-	10 A (HBC)

Fuse F2

5 A Auto-reset

Fuse F3

110 V	-	2 AT
208 V	-	1 AT
230 V	-	1 AT

VALI V20

Fuse F1

110 V	-	20 A (HBC)
208 V	-	15 A (HBC)
230 V	-	15 A (HBC)

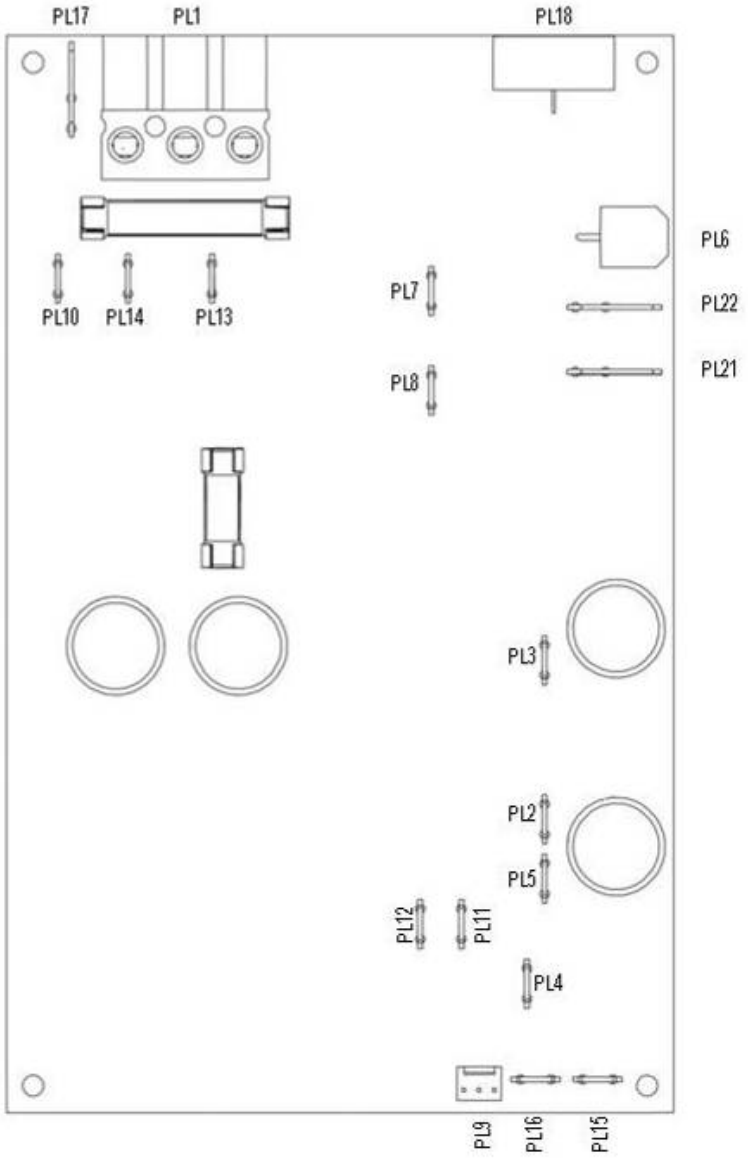
Fuse F2

5 A Auto-reset

Fuse F3

110 V	-	2 AT
208 V	-	1 AT
230 V	-	1 AT

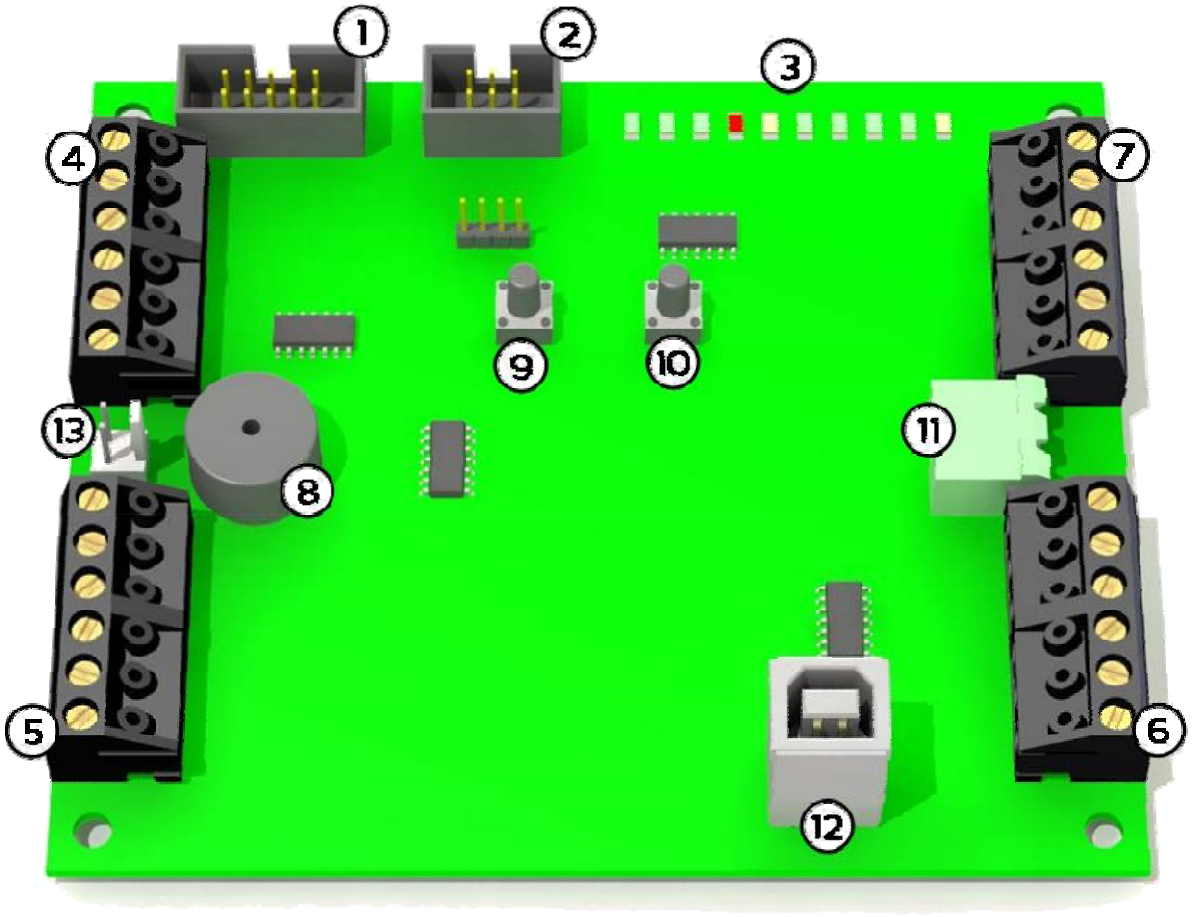
Connection Details



PL1	Mains Inlet
PL2	+ Pump 1
PL3	- Pump 1
PL4	+ Pump 2
PL5	- Pump 2
PL6	Fluid Sensor Input
PL7	TCO circuit
PL8	TCO circuit
PL9	Internal Fan
PL10	Heater N1
PL11	+ Thermocouple
PL12	- Thermocouple
PL13	Heater L
PL14	Heater N1
PL15	C/O Valve
PL16	C/O Valve
PL17	Earthing Spade
PL18	SPI Link

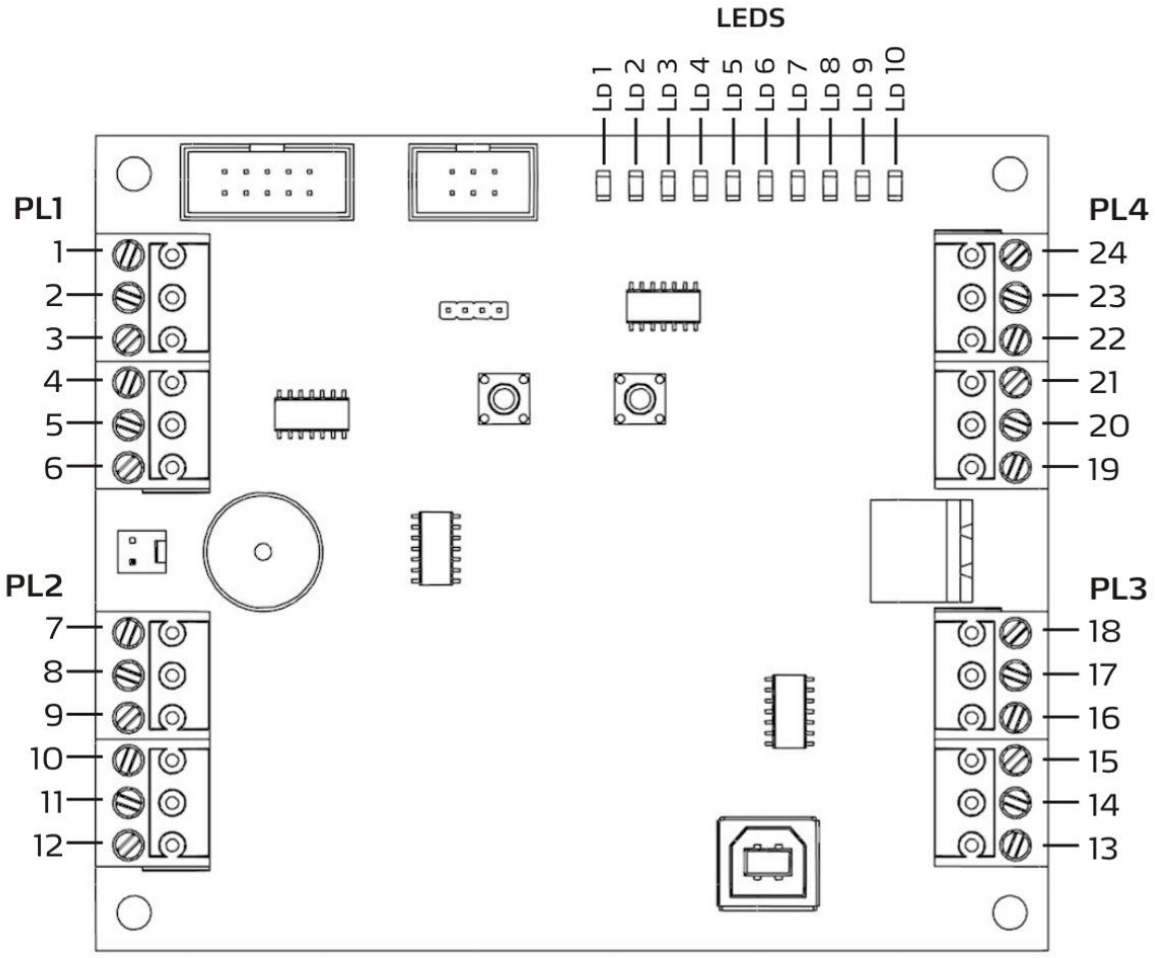
Interface board

Layout



1. SPI connection
2. Programming socket
3. LED output
4. PL1
5. PL2
6. PL3
7. PL4
8. Sounder
9. Switch 1
10. Switch 2
11. Field bus connector
12. USB Interface
13. Test button connector

Connection Details



Status LEDS

LEDS	LD 1	Battery (on – ok)
	LD 2	Mains (on – ok)
	LD 3	System ready (on – ready)
	LD 4	Heater (on – heating)
	LD 5	Temperature fault (on – fault)
	LD 6	Low fluid (on ok, off fault)
	LD 7	No fluid (on ok, off fault)
	LD 8	System (on – ok)
	LD 9	System active (on – active)
	LD 10	Backstop active (on – active)

Interface Board Connections

PL 1	Terminal 1	12 V
	Terminal 2	PIR
	Terminal 3	Cloaksensor
	Terminal 4	Case open, Log signal.
	Terminal 5	Signal 0 V
	Terminal 6	0 V
PL 2	Terminal 7	Fire inhibit +
	Terminal 8	Fire inhibit -
	Terminal 9	Set +
	Terminal 10	Set -
	Terminal 11	Smoke +
	Terminal 12	Smoke -
PL 3	Terminal 13	Normally closed (open when system active)
	Terminal 14	System active (default) / Backstop Timer
	Terminal 15	Normally closed (open in fault condition)
	Terminal 16	Low fluid
	Terminal 17	Normally closed (open in fault condition)
	Terminal 18	System fault
PL 4	Terminal 19	12 V out + (1 A Max)
	Terminal 20	12 V out - (1 A Max)
	Terminal 21	Panic/SAI Input +
	Terminal 22	Panic/SAI Input -
	Terminal 23	Normally closed AUX OUT
	Terminal 24	Mains failure (default) / Backstop timer

IMPORTANT

UNDER NO CIRCUMSTANCES SHOULD THE ON BOARD POWER SUPPLIES OF THE SMOKECLOAK (TERMINALS 1, 6, 19, AND 20) BE LINKED TO ANY OTHER 3RD PARTY EQUIPMENT E.G. ALARM PANELS, ADDITIONAL POWER SUPPLIES, ETC. AS THIS COULD CAUSE UNEXPECTED FAULTS WITHIN THE MACHINES. THIS SUPPLY MAY DROP TO 0 V WHILE THE MACHINE IS STILL OPERATIONAL. DO NOT USE THIS OUTPUT FOR ANY PURPOSE WHICH MAY BE AFFECTED BY THIS POWER LOSS.

IMPORTANT

THE PANIC INPUT FEATURE WILL NOT FUNCTION IF THE VALI IS IN A POWER SAVE MODE. IN ALL OTHER INSTANCES THE PANIC INPUT FEATURE WILL OVERRIDE ALL OTHER INHIBIT FUNCTIONS

Connections between the SmokeCloak and the alarm panel are made to the interface board via four 6-way plug-in connectors. 10 LEDs also found on the interface board indicate information concerning the status of the SmokeCloak.

The inputs to the SmokeCloak are optoisolated and can be directly connected to transistorised outputs from alarm panels (2mA draw), the connections are polarity conscious and care should be taken.

The fault outputs are "clean" 150 mA, 60 V DC solid state relay contacts PL3 and PL4 (terminals 13-18, 23-24).

During the day when the alarm panel is de-activated, it is important that SmokeCloak cannot produce smoke, so the pump(s) are only connected to the control electronics when the panel is set or armed.

Cables required:

1 cable with up to 16-cores

- 1 pair for critical fault
- 1 pair for tamper
- 1 pair for low fluid
- 1 pair for set
- 1 pair for trigger

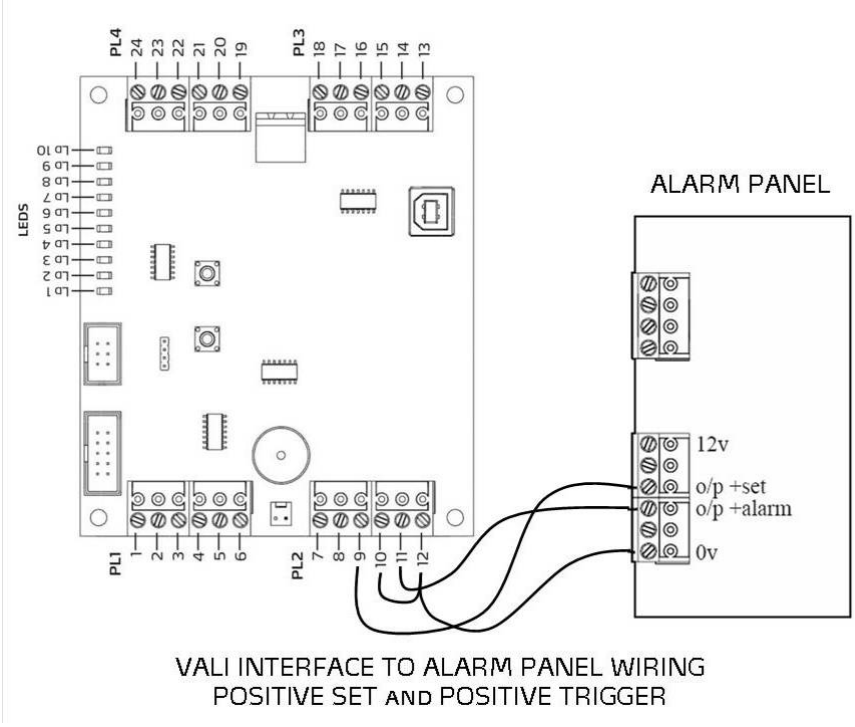
Optional:

- 1 pair for fire alarm inhibit
- 1 pair for SmokeCloak active
- 1 pair for Panic
- 1 pair for backstop timer/mains fault

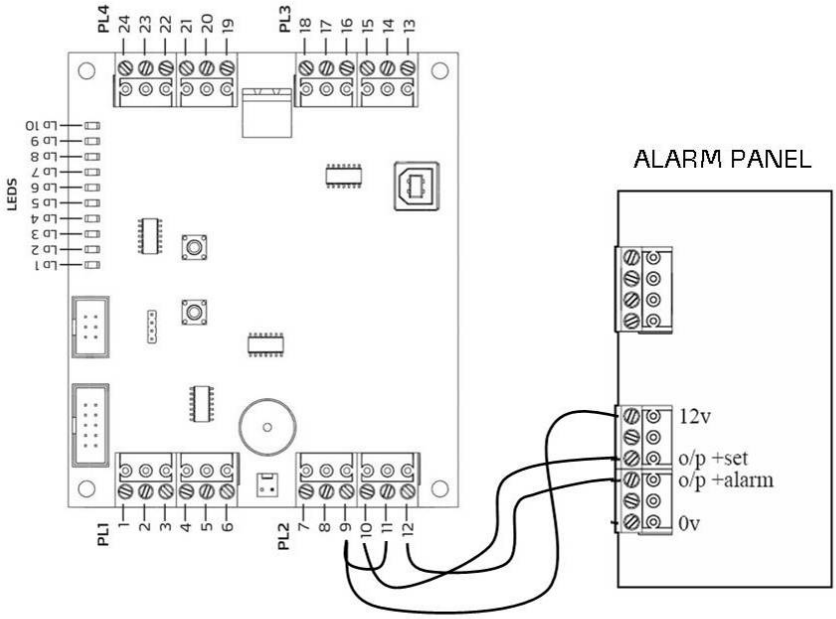
THE INPUTS TO THE SMOKECLOAK REQUIRE BETWEEN 5 V – 12 V APPLIED TO OPERATE CORRECTLY (NORMAL POWER SUPPLY TOLERANCES APPLY). THEY WILL DRAW APPROX 2 MA FROM THE ALARM PANEL.

To use voltage removed signaling it is necessary to use the PC interface in order to make this selection on the set and trigger inputs only.

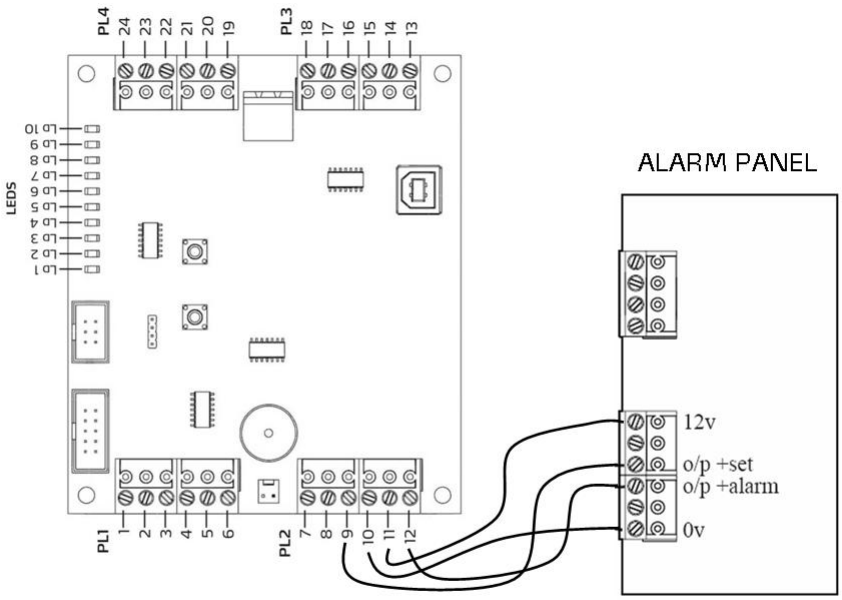
Use the appropriate diagram below to interface the SmokeCloak to your alarm panel:



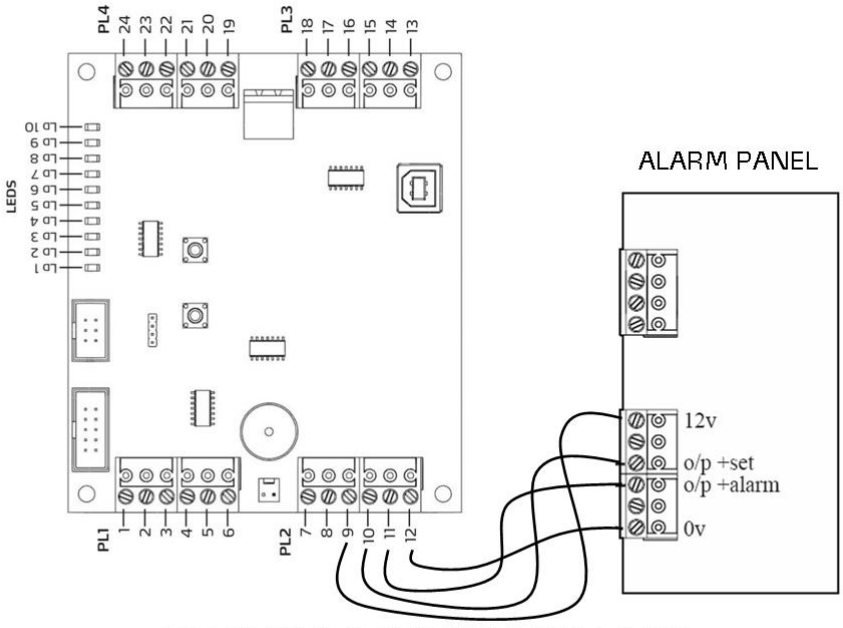
VALI INTERFACE TO ALARM PANEL WIRING
POSITIVE SET AND POSITIVE TRIGGER



VALI INTERFACE TO ALARM PANEL WIRING
NEGATIVE SET AND NEGATIVE TRIGGER



VALI INTERFACE TO ALARM PANEL WIRING
POSITIVE SET AND NEGATIVE TRIGGER

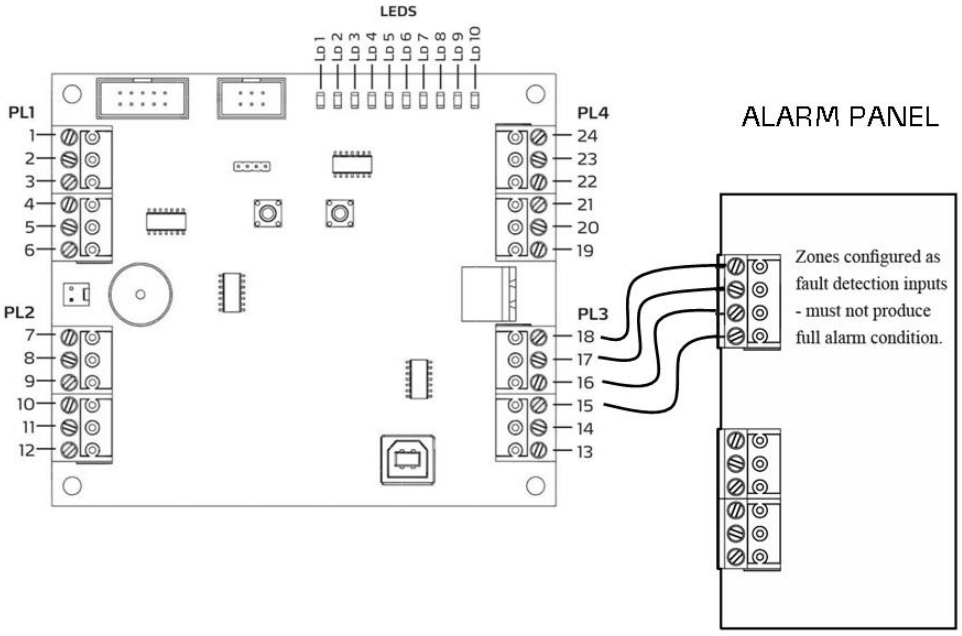


VALI INTERFACE TO ALARM PANEL WIRING
NEGATIVE SET AND POSITIVE TRIGGER

DISCLAIMER: ACTUAL ALARM PANELS MAY VARY FROM THOSE ILLUSTRATED AND MSS PROFESSIONAL CAN NOT BE HELD RESPONSIBLE FOR FAULTS DUE TO INCORRECT INSTALLATIONS.

Fault Outputs

Fault circuit connections at panel.



VALI INTERFACE TO ALARM PANEL WIRING
FAULT CIRCUITS CONNECTION

SmokeCloak has two outputs that feed fault information back to the alarm panel.

Low fluid output

Terminals 15 and 16 are normally closed (default). These open if the bottle is less than one third full. The polarity of the switching follows the selection made for the system fault relay (using the PC tool).

This output is always suppressed when the system is set.

Critical fault output

Terminals 17 and 18 are normally closed. These open if a critical fault is present (loss of mains power, faulty batteries, no fluid or temperature fault).

This output can be suppressed when the SmokeCloak is SET using the USB interface software.

MAINS FAILURE CAN BE MONITORED SEPARATELY BY SETTING THE AUX OUT RELAY TO 'MAINS OK', AND SETTING THE MAIN FAULT RELAY TO 'NO MAINS', USING THE PC TOOL AND CONNECTING TERMINALS 23 AND 24 TO A ZONE ON THE ALARM PANEL.

IMPORTANT

IT IS ESSENTIAL THAT THESE FAULT CIRCUITS SHOULD ONLY BE CONNECTED TO EITHER A LOGGED LOCAL WARNING CIRCUIT (I.E. TECHNICAL OR PLANT MONITOR) OR VIA THE COMMUNICATOR TO THE CENTRAL STATION, SO THAT, IN THE EVENT OF A FAULT, A FULL ALARM CONDITION WILL NOT OCCUR!

IF THE MACHINE ENTERS A LOW POWER MODE (WHEN THE MAINS IS REMOVED FOR A LONG PERIOD) THE FAULT RELAYS WILL BECOME OPEN CIRCUIT. ALWAYS ENSURE THAT THIS WILL NOT CAUSE A PROBLEM WITHIN THE INSTALLATION.

It is not desirable to have a full alarm condition and then a SmokeCloak activation just because of a fault condition. If the alarm panel is not capable of supporting local alarm only, for monitoring these circuits, then consider using a spare communicator line to central station. As a last resort a buzzer or LED can be used as a warning device. If in doubt please contact your supplier for advice.

IMPORTANT

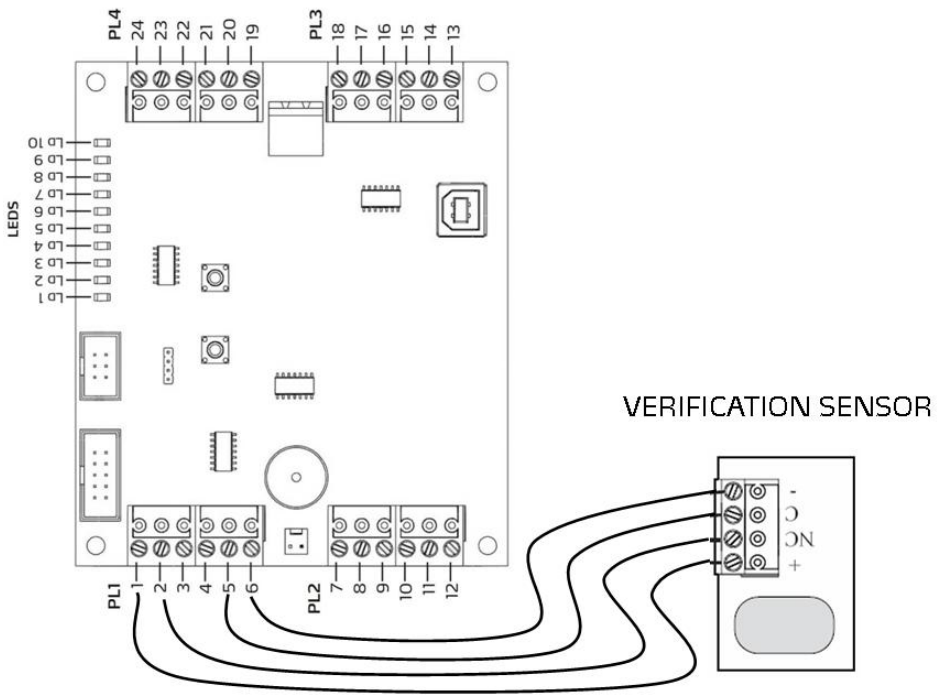
IT IS IMPORTANT THAT IN THE EVENT OF A FAULT BEING DISPLAYED YOU CONTACT YOUR INSTALLATION ENGINEER. FAILURE TO DO SO COULD LEAD TO RISK OF FIRE OR ELECTRIC SHOCK.

Demo/Test button wiring.

Although the VALI machines come with a dedicated test button found on the side cover of the machine, it is possible to create an additional test button for use whilst the covers are disengaged.

This should be done by creating a link across the two contacts on the test button connector. See page 28 for details of connector.

Verification Sensor (optional)



VALI INTERFACE TO ALARM PANEL WIRING
VERIFICATION SENSOR CONNECTION

A normally closed loop provided by door contacts, PIRs or similar can be connected to terminals 2 and 5. The power for active devices (250 mA max) is taken from terminal 1 (+12 V) and terminal 6 (0 V).

THIS INPUT DOES NOT TRIGGER THE SMOKECLOAK, BUT HOLDS OFF ITS ACTIVATION DESPITE AN ALARM TRIGGER UNTIL THE VERIFICATION LOOP DETECTS AN INTRUDER. THE BACKSTOP TIMER IS ALSO INHIBITED UNTIL SMOKE IS PRODUCED.

Cloaksensor

The Cloaksensor detects and controls the amount of vapour produced by the SmokeCloak after the initial activation. The Cloaksensor requires careful siting. Fit the sensor in a position in the room which will provide an indication of the drop in vapour concentration, (normally in the centre of the area the machine is protecting. Always test the system after installation to confirm the chosen position is correct) but also observing the following notes:

Installation

Wall Mounting

When a ceiling position is not practical (for example on a ceiling having exposed beams or joists or built-in radiant heating), put the top edge of the Cloaksensor between 30 and 60 cm (12 and 24 inches) below the ceiling. Keep at least 60 cm (24 inches) from corners.

On a sloping ceiling

In areas with sloping or peaked ceilings install the Cloaksensor 90 cm (3 feet) from the highest point measured horizontally because the “dead air” at the apex may prevent the effect from reaching the unit.

Locations to avoid for Cloaksensor

- Near a decorative object, door, light fitting, window moulding etc., that may prevent smoke from entering the Cloaksensor.
- Surfaces that are normally warmer or colder than the rest of the room (for example attic hatches, un-insulated exterior walls etc). Temperature differences might stop smoke from reaching the unit.
- Next to or directly above heaters or air conditioning vents, windows, wall vents etc. that can change the direction of airflow.

IMPORTANT

SAFEGUARDS

TO MAINTAIN SENSITIVITY TO SMOKE, DO NOT PAINT OR COVER THE CLOAKSENSOR IN ANY MANNER AND DO NOT PERMIT ANY ACCUMULATION OF COBWEBS, DUST OR GREASE.

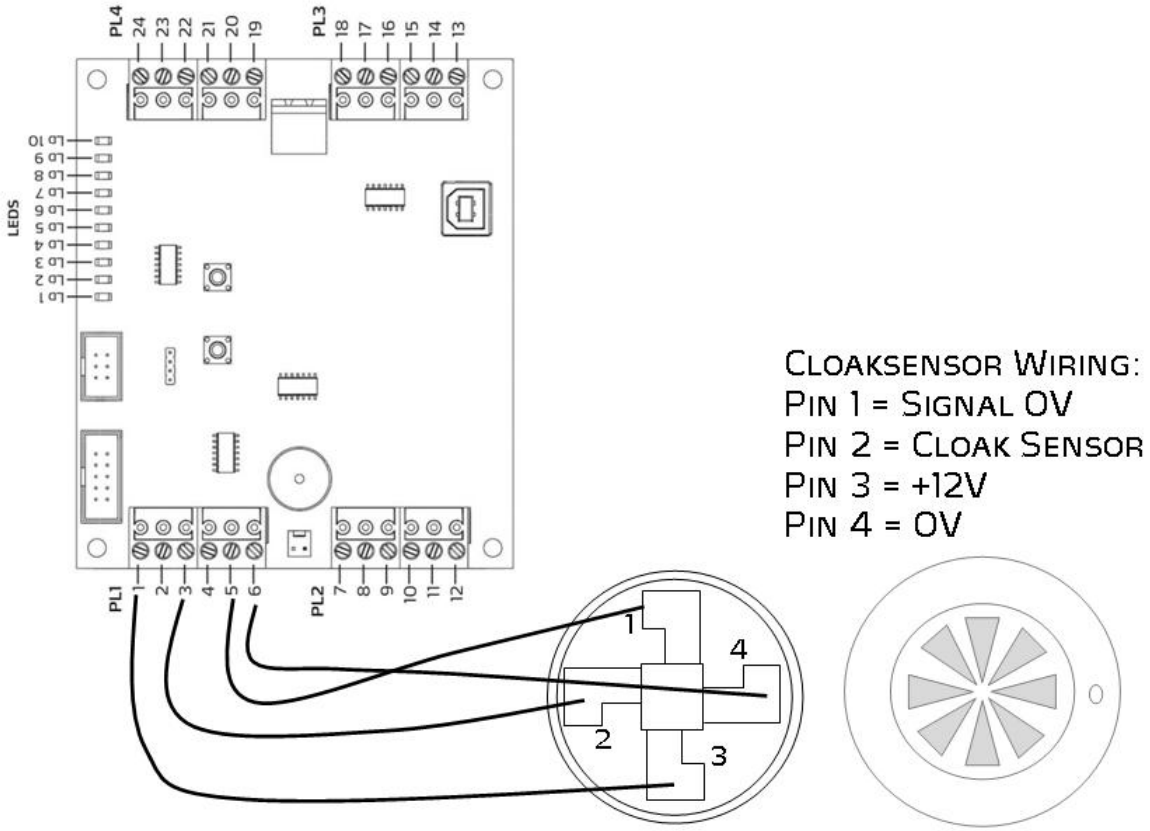
NOTE

CLEANING

TO ENSURE CONTINUED LEVELS OF PERFORMANCE, THE CLOAKSENSOR MUST BE CLEANED AT REGULAR INTERVALS.

Cloaksensor Wiring

A 6-core lead is taken to the Cloaksensor for smoke density control from PL1 terminals 1, 3, 5 and 6. It is recommended that an extra pair is used as a tamper loop and simply returned in the Cloaksensor.



VALI INTERFACE TO CLOAKSENSOR WIRING

Setting the Timer

In order to ensure the correct level of coverage it is necessary to set-up the initial fill time of the machine. This can be done in two ways:

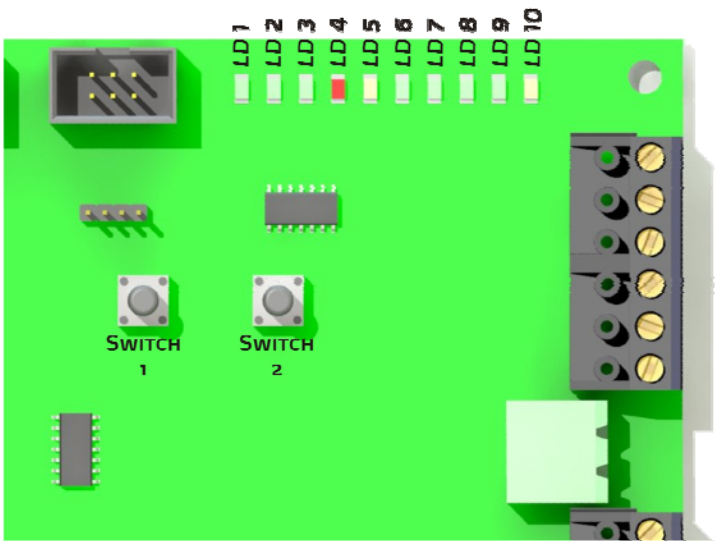
- Firstly the timers can be set manually using the interface board.
- Secondly, for easier installation the timers can be set up using the USB interface.

You can determine the time required by carrying out a test firing and note the time required to fill the room or set the timer using the time chart below. Avoid overfilling the room – visibility should be reduced to approx. arm's length.

Approximate fill volumes in m^3 as a guide by time:

Model	V5	V10	V20
15 seconds	140 m^3	210 m^3	300 m^3
30 seconds	210 m^3	405 m^3	600 m^3
60 seconds	370 m^3	550 m^3	790 m^3

Setting the Timers through the Interface Board



In order to manually set the timers on the VALI range, 2 switches on the interface board can be used in conjunction with the status LEDS.

The timer is set in terms of the number of single second units (using switch 1) and the number of 10 second units (using switch 2).

To display the current number of single second units the timer is set to:

Press switch 1 once, you will notice one of the status LEDs will be illuminated. This corresponds to the number of single seconds. i.e. LD4 being illuminated means the timer is set to 4 seconds, this must be combined with the number of 10 second units to give the total timer setting.

To display the current number of ten second units the timer is set to:

Press switch 2 once, you will notice one of the status LEDs will be illuminated. This corresponds to the number of ten seconds. i.e. LD3 being illuminated means the timer is set to 30 seconds, this must be combined with the number of single second units to give the total timer setting, i.e. if the two previous instructions had been followed the total time would be 34 seconds.

To modify the number of single second units the timer is set to:

Press switch 1 once, this will display the current setting. Now press switch 1 again to increment through until the desired number of seconds is reached. Once the LEDs reach 9, pressing the switch again will turn off all LEDs. This represents that no single second units are selected, i.e. when wanting to select 20 seconds. Pressing the button again will begin cycling back through starting at LD1.

To modify the number of ten second units the timer is set to:

Press switch 2 once, this will display the current setting. Now press switch 2 again to increment through until the desired number of 10 second units is reached. Once the LEDs reach 5, pressing the switch again will turn off all LEDs. This represents that no ten second units are selected, i.e. when wanting to select 06 seconds. Pressing the button again will begin cycling back through starting at LD1.

THE TIMER HAS A BUILT IN MINIMUM VALUE OF 6 SECONDS, SETTING THE TIMERS TO VALUE LESS THAN THIS WILL CAUSE THE MACHINE TO AUTOMATICALLY SET THE TIMER TO 6 SECONDS.

Preparation for final Test

Before proceeding with any test, it is essential that the local fire brigade, people on site and neighbours are informed of what is going to happen.

Ensure that any fire detection system is put on test or the customer has control of it. SmokeCloak will activate all types of smoke detector. However, it will not activate heat or carbon monoxide detectors.

IMPORTANT

THE SUPPLIED SMOKECLOAK WARNING SIGNS MUST BE FITTED ON OR NEAR LIKELY POINTS OF ENTRY. THIS IS AN INSURANCE REQUIREMENT TO WARN ANY PERSON ENTERING THE BUILDING THAT SMOKECLOAK IS INSTALLED.

Maintenance

The VALI machines require an annual maintenance check in order to sustain the correct levels of performance and security.

This requires the following:

- A full test of the system. This can be done using the manual test button on the side of the machine, with the machine in SAI (Service Active Input) mode. See page 51.

- Replace the fluid (do not top the fluid up).

- Load test the batteries and replace as necessary. It is recommended that batteries are replaced every 2 years due to the heat inside the machine.

- The fan should be observed, any signs of excessive wear to the fan bearings should result in the fan being replaced.

IMPORTANT

DO NOT ATTEMPT TO CLEAN THE INTERNAL COMPONENTS OF THE VALI OR TO CLEAN AROUND THE NOZZLE AREA –THIS WILL BE EXTREMELY HOT. THE OUTER COVERS MAY BE WIPED DOWN TO REMOVE DUST BUILD UP.

USB Interface

Updating the registry

Before installing or attempting to use any of the PC based tools, it is important that the following steps are taken in order to update the windows registry. Failure to do this can lead to problems connecting to the VALI.

The registry updater can be found on the CD received with your product, in the \Drivers directory.

- Locate and run the file 'VALI registry updater'.
- You will be asked if you wish to update the windows registry, select ***'Yes'.***
- You will be provided with a confirmation notice that the registry has been successfully updated.

It is only necessary to follow this process the first time a particular computer is used to connect to a VALI.

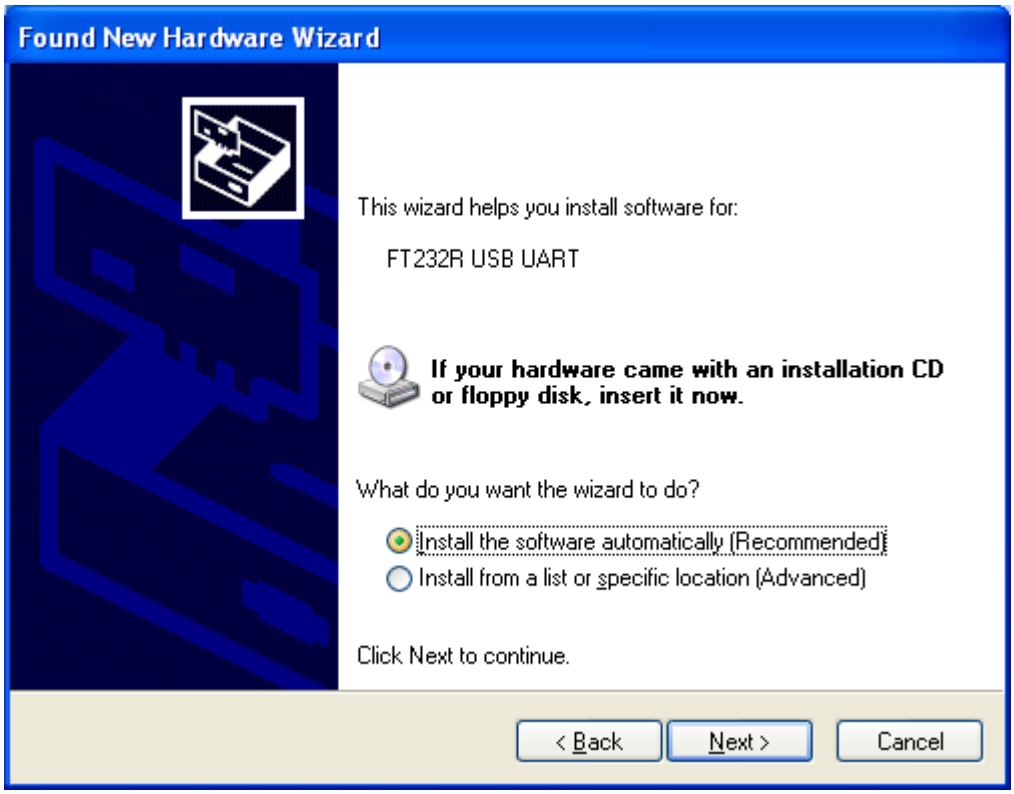
In order to avoid further problems when connecting your PC to the VALI, you should always use the same USB port when connecting to a VALI machine.

Installing the VALI driver

In order to create a connection between the VALI and your computer it is necessary to install the VALI as a driver so it will be recognised each time a link is made.

In order to do this:

1. Power up the VALI and use a USB cable to link the VALI to your PC or laptop.
2. Your computer should recognise the new hardware; you will then be asked if you want to connect to the internet in order to find the correct software, select NO.
3. Next insert the CD that comes as part of your manual pack. Select the option: 'install the software automatically' (see below).



NOTE: If this does not work you can manually point to the driver, it is found on the CD, in the /Drivers directory.

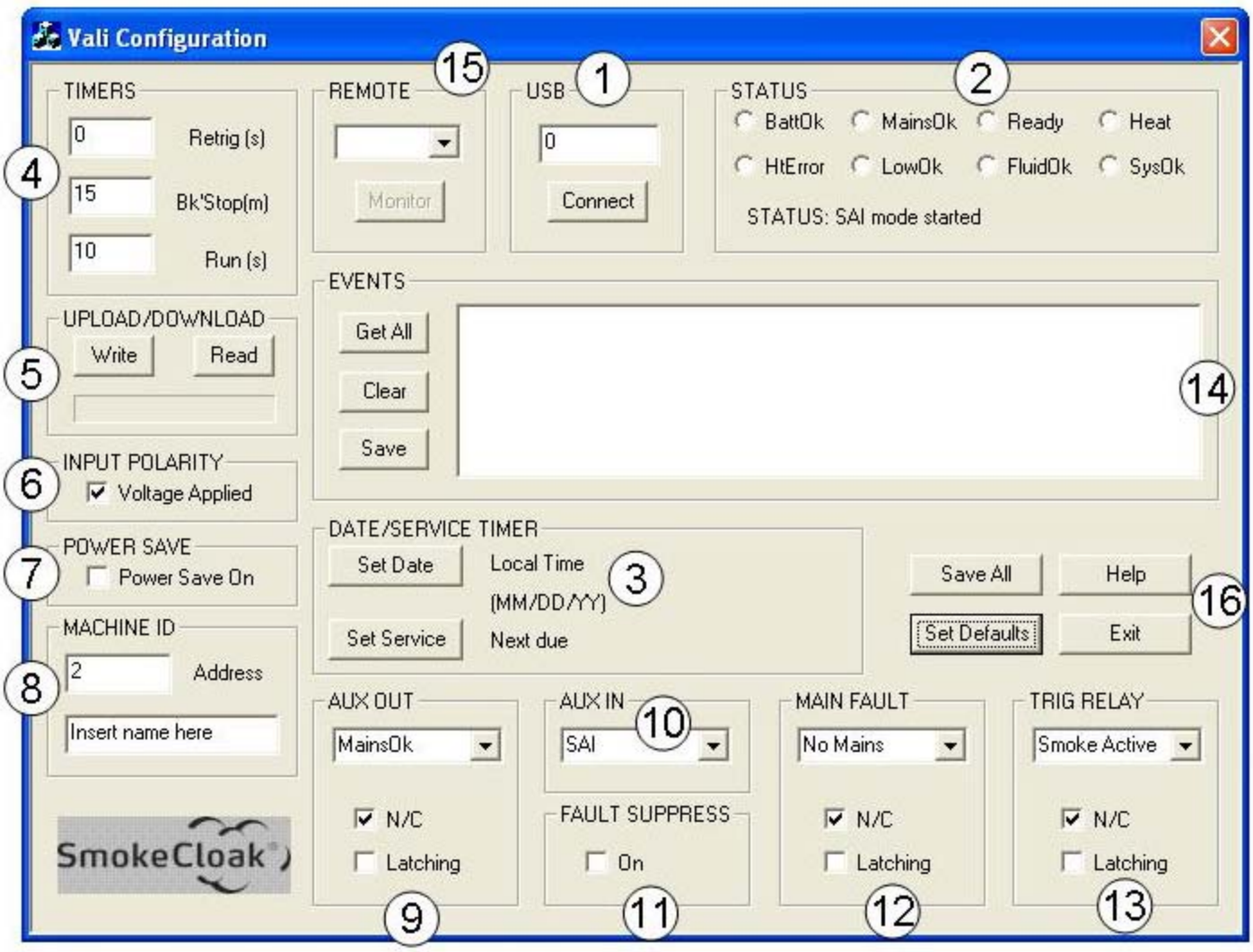
4. This will complete the driver installation. Note the COM port number. (This can be found in the hardware device manager found under the properties of 'My Computer – under the Universal Serial Bus controllers branch).

It may be necessary to reboot your computer for the changes to take effect.

Installing the configuration software

Copy the VALI configuration program that can be found on the CD to a local drive on the computer.

NOTE: Default values are shown below.



Connecting to the VALI

- Using the appropriate USB cable, create a link between the USB port on the interface board of the VALI and the computer. Allow sufficient time for the computer to recognize the VALI being connected, ignore any momentary error message displayed in this period.
- Run the VALI Configuration Program from your local drive.

1. Click the Connect button. Note: ensure that the USB value matches the port value (COMM port no.) shown by the VALI driver, as detailed above. If the connection has been successful the status will show ***'Link is live'*** and the status displays should also become active.
2. If this is the first time you have connected to this unit via the USB link it is necessary to set the date in order to correctly log events. This is done by simply clicking the ***'set date'*** button. This will synchronise the date with the date on your PC. In the same way you should also create the service interval by clicking ***'set service.'***

   The service interval should be set when the machine is first installed, and then reset each time a service is carried out. The recommended service interval is 12 months.
3. You are now ready to use the USB interface software.

Using the software

4. Timers

Here the current values are displayed for Retrigger, Backstop and Run timers. They can also be manually adjusted by simply typing the desired value.

Retrigger — Sets the period of time between the end of the machine's trigger cycle, before it re-fires in order to maintain the effect within a room. This will continue to happen until the alarm is disabled or the backstop expires. (minimum 100 s, maximum 250 s).

IMPORTANT

WHEN USING THE RETRIGGER FUNCTION, INSTALLERS SHOULD CALCULATE THE SETTING FOR THE BACKSTOP TIMER ON THE BASIS OF THE NUMBER OF RE-TRIGGER CYCLES REQUIRED.

Backstop — Sets the length of time for which the machine will continue to re-trigger. After this period the backstop will override any retrigger sources and return the machine to a ready state.
(Default value is 15 min, 2 min minimum and 60 min maximum.)

Run — The period of time for which the machine will fire once triggered.
(6 s minimum and 59 s maximum.)

5. Upload/Download

By pressing the *'Read'* button, the current settings of the machine will be displayed. Pressing the *'Write'* button will upload the values currently displayed in the timers section, along with any additional changes made. These will overwrite the existing values and settings currently held within the memory of the machine.

6. Input Polarity

Highlighting the tick box will invert the polarity of the set and trigger input signals. In order for this change to become active it is necessary to upload the changes by clicking the ***'Write'*** button (see above).

7. Power Save

Highlighting the tick box will activate a power save mode on the machine. In order for this change to become active it is necessary to upload the changes by clicking the ***'Write'*** button (see above). Do not use in conjunction with the panic option on Aux-In.

8. Machine ID

It is possible to assign a number, name or both to a particular machine. This can be especially useful for installations where multiple machines are to be used for easy identification. To assign information to a machine, type the desired number or name and click the ***'Write'*** function. This will write the information to the memory of the machine. Next and every subsequent time the 'Read' function runs, it will display ID information. Writing this information to the machine will overwrite any existing data.

9. AUX out (terminals 23 and 24)

This allows the function of the auxiliary output to be modified to suit the particular installation. Click the drop down box and select the desired function. The settings will not be updated until the next time the ***'Write'*** function is activated.

10. AUX in (terminals 21 and 22)

This allows the function of the auxiliary input to be modified to suit the particular installation. Click the drop down box and select the desired function. The settings will not be updated until the next time the ***'Write'*** function is activated.

The default setting of SAI (service active input) allows installers to activate SAI mode without connecting a PC to the machine. Activating SAI allows the test button to become operational.

If the Panic Input is selected from the drop down box, applying 12 V across this input will trigger the machine, without requiring the set/trigger inputs.
Do not use panic input in conjunction with the PowerSave mode.

11. Fault Suppress

Ticking this box will suppress the critical fault when the system is set.

12. Main Fault (terminals 17 and 18)

This allows the behaviour of the main fault to be selected. The drop down box allows alternation between inclusion or exclusion of mains failure.

13. Trigger Relay (terminals 13 and 14)

Allows the function to be adjusted so that it can either open when the machine is fired or when it times out against the backstop timer.

14. Events

The VALI has the capability of creating an event log. This will display details of times and dates of activations, fault output etc. Using the USB software this event log can be downloaded and saved to an external location.

The most recent 50 events will automatically be downloaded to the onscreen viewing window each time that a VALI is connected.

These can be viewed here or alternatively downloaded by clicking the *'Save'* button.

To gather all the remaining entries (up to 1000) from the VALI, ensure the machine is connected and click the *'Get All'* button. This will gather all entries made and then present you with a dialogue box asking you to save out this information as a .txt file.

Clicking the *'clear'* button will remove all entries currently shown in the viewing window, Ensure these are saved prior to using the clear function if required.

15. Remote

This feature will not be available until the second software release.

16. Additional Controls:

Save All	Saves current settings as a .txt files. This can be saved to an external location.
Set Defaults	Returns all the settings to the factory defaults.

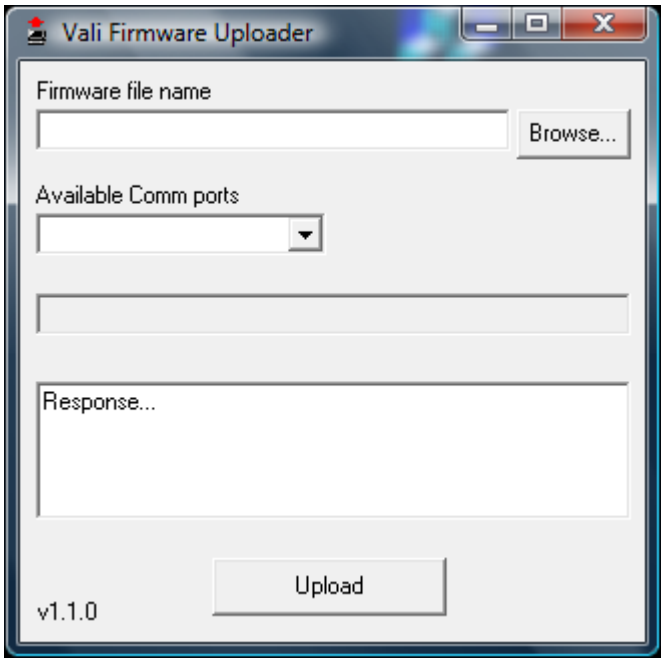
Exit	This closes the configuration program.
Help	Launches a PDF copy of this manual which provides assistance with all aspects of the VALI machine.

Installing and using the bootloader

The VALI machine contains bootloader software, this enables software updates to be installed via the USB link. For the latest software release please contact MSS Professional A/S.

Insert the CD, open the bootloader directory and select the setup file. This will run the install program. Follow the instructions and install the software on your local drive.

Once the software is installed run the program, you will be presented with the following interface.



Next the VALI must be put into bootloader mode, to do this:

Reboot your VALI while pressing and holding either the left (power board upload) or right (interface board) button on the interface board.
LED 1+2 will start flashing if the interface board has been chosen.
LED 3+4 will start flashing if the Main board has been chosen.

Select the COMM port, as installed previously.

Next click browse and locate the software file you wish to install.

Now click upload. The program will ask if you wish to replace the existing software, select YES and the software will now install.

Reboot the VALI and the unit will exit bootloader mode and restart complete with the new software.

IMPORTANT

ENSURE THE SOFTWARE VERSION BEING INSTALLED IS THE CORRECT VERSION. DETAILS OF THE SOFTWARE REVISIONS CAN BE OBTAINED BY CONTACTING MSS PROFESSIONAL A/S.

Accessories

Fluid FL600-V

SmokeCloak FL600-V is an exclusive mixture of deionised water and food grade glycols. The formula that has been developed through many years of experience and R&D gives a unique combination of density and hang time.

The SmokeCloak FL600-V fluid is very economical in the production of SmokeCloak vapour.
The typical "hang" time in a static air environment is around 45 min and the FL600-V fluid creates a uniform sub micron particle size.

Fluid is supplied in different sizes to suit the variety of machines and run times. The fluid is harmless and a full safety data sheet is available on request.

Cloaksensor CS07A

The SmokeCloak CS07 Cloaksensor is the part of the system that detects whether the room has the correct amount of vapour and sends a signal to the SmokeCloak machine requesting more vapour if the room is below the optimum level.

The unit is built into a standard smoke detector case and the internal circuitry and calibration are specifically designed and constructed to meet the requirements of the SmokeCloak system.

Dimensions: 120 x 60 x 120 mm

Weight: 0.167 kg

Colour: White

Strobe IPL3000

The IPL 3000 is designed to provide Instant Protection combined with a reduced SmokeCloak smoke density, to produce a blinding effect.

The IPL 3000 is a high quality, very high intensity, security strobe light. The system is compatible with all of the SmokeCloak products, and is configured so that the operation of the IPL 3000 is controlled by the SmokeCloak.

The IPL 3000 is designed for easy installation. The outer casing is made of metal. It can be located in public areas or concealed in roof spaces if preferred.

Dimensions: 425 x 245 x 240 mm

Weight: 7.5 kg

Colour: Black

Sounder IPA125

The patented sound of the IPA 125 is produced by 8 extremely powerful transducers driven by a custom built amplifier. This makes the IPA 125 capable of producing 125 db of intolerable sound at a distance of 1 metre.

The built-in alarm interface makes it easy to connect to any electronic alarm installation and with on board battery back up, reliable protection is secured.

The IPA 125 is designed to easily fit into all types of buildings. The outer casing is made of aluminium, and incorporates sabotage protection.

The IPA 125 can be easily linked with other IPA 125 units in order to protect larger areas; the SmokeCloak products can be used to control the IPA 125.

Dimensions: 686 x 103 x 41 mm

Weight: 1.7 kg

Colour: Aluminium

Voice Module

The SmokeCloak CS140 voice module is a 12 V digital voice system, containing an embedded chip with a pre-recorded message. It is designed to be remotely positioned near to the normal access to the building and, if required, the protected area.

The unit is particularly important in large, multi-occupancy or public access buildings so that any innocent third party is clearly aware of what is happening and that they should leave the area.

The standard voice module is available in English, German, French, Spanish and Portuguese although customised units are available to special order.

Dimensions:	195 x 118 mm
Colour:	Aluminium and grey
Weight kg:	1.9 kg

Batteries

The SmokeCloak is installed with two lead-acid batteries ensuring full smoke protection in the event of main power failure.

The battery is from one of the world's leading manufactures of maintenance-free lead acid batteries. This ensures long service intervals, and low periodical costs.

The battery is especially designed for the operational conditions in alarm systems, with long stand-by periods and short intense energy loads.

Dimensions:	97 x 42 x 51 mm
Weight:	0.62 kg
Battery Type:	NP1.2-12
Nominal Voltage V:	12 V
Capacity:	1.2 Ah

Notes:

Supplier:

ISO: MSS 5169B P/N 35010504_F

SmokeCloak®

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