

QUICK REFERENCE INSTALLATION MANUAL



**Density 600 &
2400C Lite**

UK MANUAL – Generic Relay Operation

IMPORTANT-

This guide has been written to highlight important aspects of how the machine should be set up and programmed. It has not been written to replace the Density manual and it also assumes that Density Fog E- training has been completed.

To avoid injuries please securely fix the fogging machine to the wall according to the installation instructions.

It is recommended not to install the machine behind walls in a limited void without specific ventilation, to prevent possible overheating.

CAUTION: It is always recommended to fix the fog generator to a solid wall even when it is placed on a flat surface.

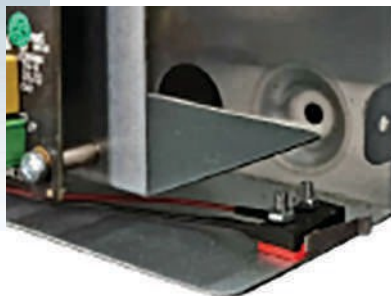
Always ensure that the bracket or the support surface is suitable for the weight of the machine.

Remove the machine from the packaging and unscrew the 4 screws fixing the front panel to gain access inside.



Connect the male metal plug connector to the fluid into the female inlet hose connector until you hear the “click” of the metal plug (pictures above).

Press and hold the FLUID RESET button until a “beep” is emitted from the buzzer.



MAINS SUPPLY

Mains power source supplies energy to the heating system and to the internal power supply.

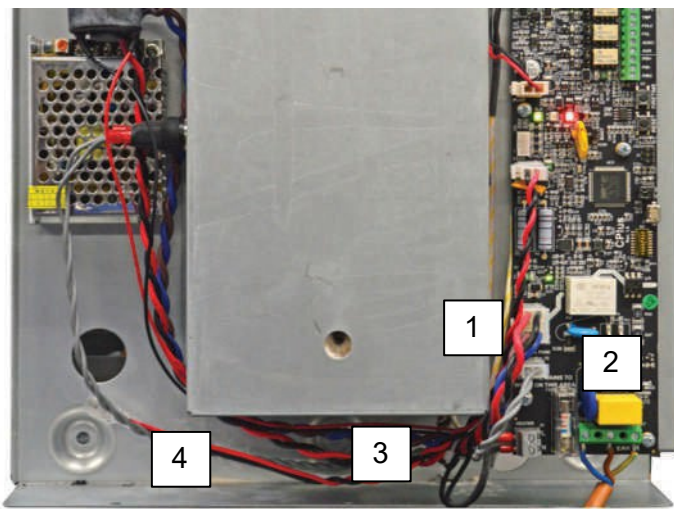
A VRLA 12V 2.3 Ah battery (not included) should be connected to allow the control board to in the event of mains power failure. The battery is recharged by the fog systems control board.

At startup the heaters' power consumption is at its maximum draw but in a couple of hours it will go down to a quiescent state.

The average consumption range is from around 37 W. Ambient temperature and battery loading can influence the average power consumption.

The lead-acid battery 2.3 Ah DC 12 V should be fitted under the heat exchanger, in a flat position with poles facing the plastic cover.

To access the battery, it is necessary to remove the frontal cover.



1. Power supply main connector.
2. Mains power.
3. Ground connection.
4. Battery slot (battery not included)

Adjustable Nozzle

Use a 14mm spanner to slacken the nozzle nut and adjust the nozzle accordingly. Retighten until the nut bites taking care not to overtighten.



Overview

The Density fog machine with the C-Plus control board is very flexible in terms of operational and design requirements. This guide provides the most common installation programming parameters.

Operational requirements

ARMING: Define on the intruder panel an output dedicated to the arming of the fog device. The relay in this area (NO) will have to close (latched) when the alarm system is activated. The Blue LED will indicate the latched status.

SHOOT- TRIGGER: Define on the intruder panel an output dedicated to allowing the emission of fog by the unit. The relay in this area (NO) will have to close (pulse) when the intruder system is activated by a confirmed intruder event. The system will emit fog instantaneously.

OPTIONAL SHOOTING METHODS

Hold Off - PIR

HOLD OFF – Jumper W1 enabled.

A dedicated DT Detector fitted directly to the Fog machine will activate the fog once a confirmed trigger and its field of view has been activated. The system must be armed, and the DT will only trigger once a confirmed (TRG INPUT) has been activated.

“AND OR” Detector operation – Jumper W1 & W2 enabled.

A dedicated DT Detector fitted directly to the Fog machine will activate the fog once its field of view has been activated. The system must be armed but will trigger irrespective of a confirmed output from the intruder panel.

Panic / HUA

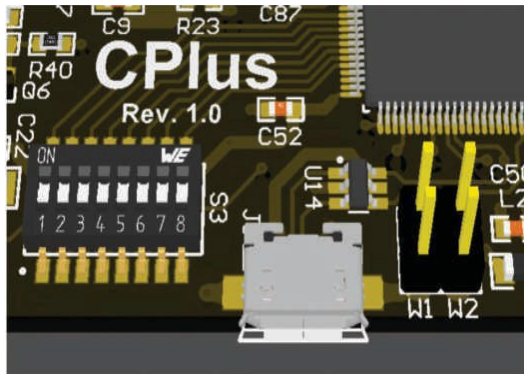
The IN1P/IN1N input is an optional trig command that enables the device to create fog EVEN WITHOUT BEING ARMED. Typically used for “Panic” Activation.

This option must only be set up if the end user is trained around its operational capabilities and on how and when to use this option. To prevent accidental activation, it is recommended that a dual push HUA button is installed. To activate Panic HUA feature, move SW 5 to the ON position, and then reboot the unit.

SHOOT REFIRE: A refire will take place after a period of minutes has elapsed and in the event of any further activation of the DT Detector.

Please note that if the ARMED signal is removed during the shooting, the unit immediately stops fog emission. HOWEVER, this rule does not apply to PA activation.

DIPSWITCH SETTINGS



DIPSWITCH	FUNCTION
1	Fire Validation Output setting – Turn On to enable
2	Off – Main Status LEDS Enabled, On Main Status LEDS Disabled
3	Off – Piezo Enabled
4	Off – Passive Security (Relays inactive, the event will activate relays)
5	Off - Panic Input Disabled
6	Reserved for future use
7	Reserved for future use
8	Off – Normal mode – On Service Mode – (Machine not operative)

Intruder panel Input / Output allocation

IMPORTANT: As a minimum Empty Fog, Fault and Key switch status must be reported back to the intruder panel.

5x Inputs (monitored zones) are required.

Zone/ Input	Attribute	Alarm Description	
1	Fault	Fluid Low	
2	Fault	Fog Fault	
3	Tamper / Intruder	Isolation Switch On	
4	Intruder	Fog Shoot	Optional
5	Tamper	Fog Lid Tamper	

3x Intruder panel – Relay outputs required. (PA Optional)

Expander Output	Function	Polarity
1	Full Set ALL	Neg Applied
2	Confirmed	Neg Applied
3	PA	Neg Applied

Fog Machine Set Up & Configuration

Dipswitch 6 Off - Normally Open Operation

IMPORTANT - INPUT IN0 P(+) & IN0 N(-) DOES NOT NEED THE HARDWIRED LINK AS PER THE Standard 900, 2400 UNITS!!

PIR Operation - (Optional)

- Enable Jumper W1 (enables Hold off PIR input)
- Enable Jumper W2 (enables “and or” PIR operation)

HUA / Panic Operation – (Optional)

- **DIPSWITCH 5 ON**– Enables HUA input - IN1 P & IN1 N.

IMPORTANT

When making changes to the JUMPER or DIPSWITCH settings it is necessary to power down the machine for at least 20 seconds for the changes to take place. This rule does not apply to DIPSWICH 8 Service Mode.

SHOOTING TABLE Density 600 (max 28 sec.)

m ³ to protect	Seconds of emission	m ³ to protect	Seconds of emission	m ³ to protect	Seconds of emission
75	7	300	14	600	28
225	9	450	21		

SHOOTING TABLE Density 2400 (max 64 sec.)

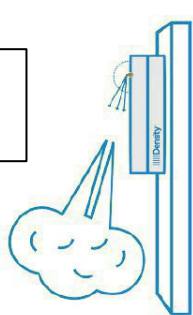
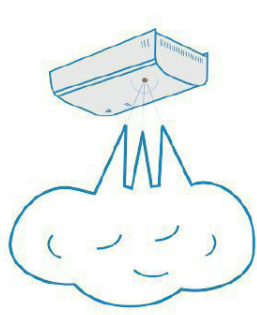
m ³ to protect	Seconds of emission	m ³ to protect	Seconds of emission	m ³ to protect	Seconds of emission
150	4	600	16	1500	40
225	6	750	20	1800	48
300	8	900	24	2100	56
450	12	1200	32	2400	64

It is important to note that the fog production of the Density® range is exponential. This means that, for safety reasons, the start is controlled before the pump reaches maximum power. It is therefore important to consider that the short times (<10 s) will be strongly impacted by this controlled start. We strongly advise you to be vigilant on the choice of programming short shooting times.

INSTALL GUIDANCE

Maximum installation heights
of Density® Fog Generators

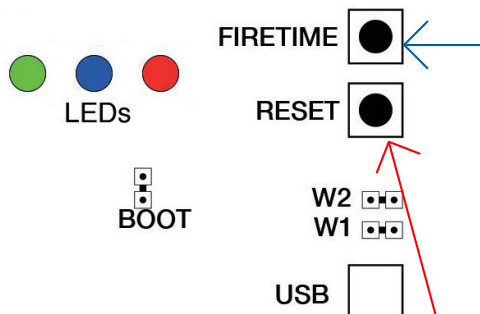


MODEL	WALL INSTALLATION	CEILING INSTALLATION
		
Density 900	2,00 to 2,20 m*	2,30 to 2,90 m**
Density 1500	2,20 to 2,50 m*	2,50 to 3,00 m**
Density 2400	2,20 to 2,50 m*	2,50 to 3,50 m**

*Standard nozzle

**Angled nozzle and/or 3 holes nozzle

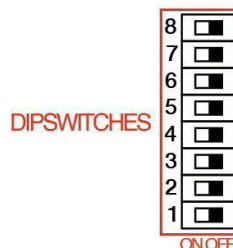
PROGRAMMING GUIDANCE



EXAMPLE:

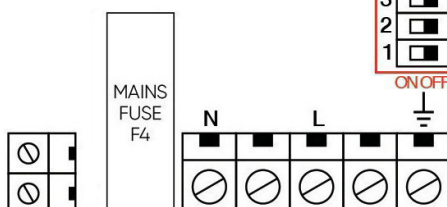
If you want to program 20 seconds of SHOOTING time: Press and hold "FIRETIME" button and count the flashes. (the beeper will sound simultaneously) When you reach 20 flashes, you simply release the button, and the time has been

PUSH AND HOLD the "FIRETIME" button. Count the number of flashes on the LEDs.



IMPORTANT!

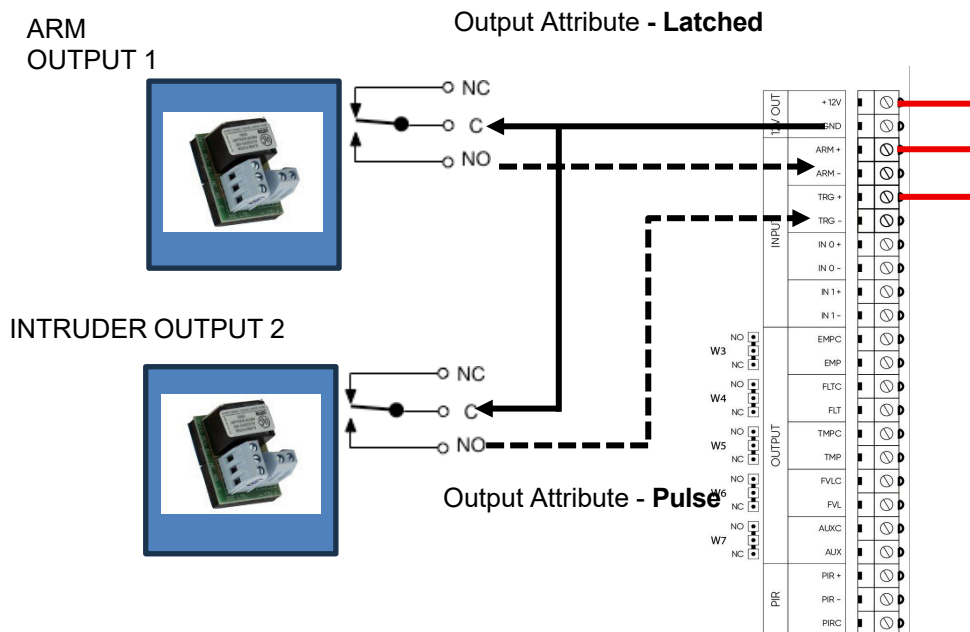
When inserting a new fog refill, or when exchanging a Density fog refill, you need to RESET the fluid measuring system. Simply push and hold the RESET button for 3-4 seconds.



Relay Output Operation

The C-Plus control board has been designed to be managed by relay operated outputs. ARM set to a latched output and the TRG set to Pulse output.

ARM, TRIGGER, - Simple Relay Output – NEG Applied



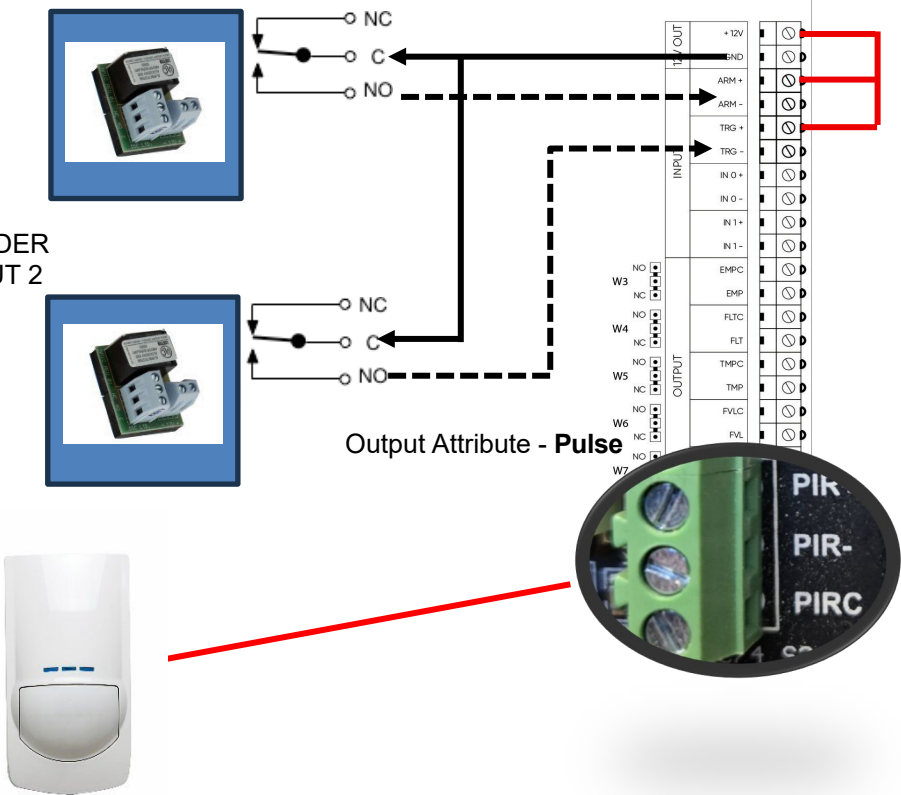
THIS EXAMPLE SHOWS USING -12V_e FROM FOG OUT. ALL INPUTS ARE OPTO ISOLATED AND APPLIED VOLTAGE CAN BE FROM A 3rd PARTY SOURCE SUCH AS THE INTRUDER PANEL

ARM, INTRUDER, + HOLD OFF PIR

ARM OUTPUT 1

Output Attribute - **Latched**

INTRUDER
OUTPUT 2

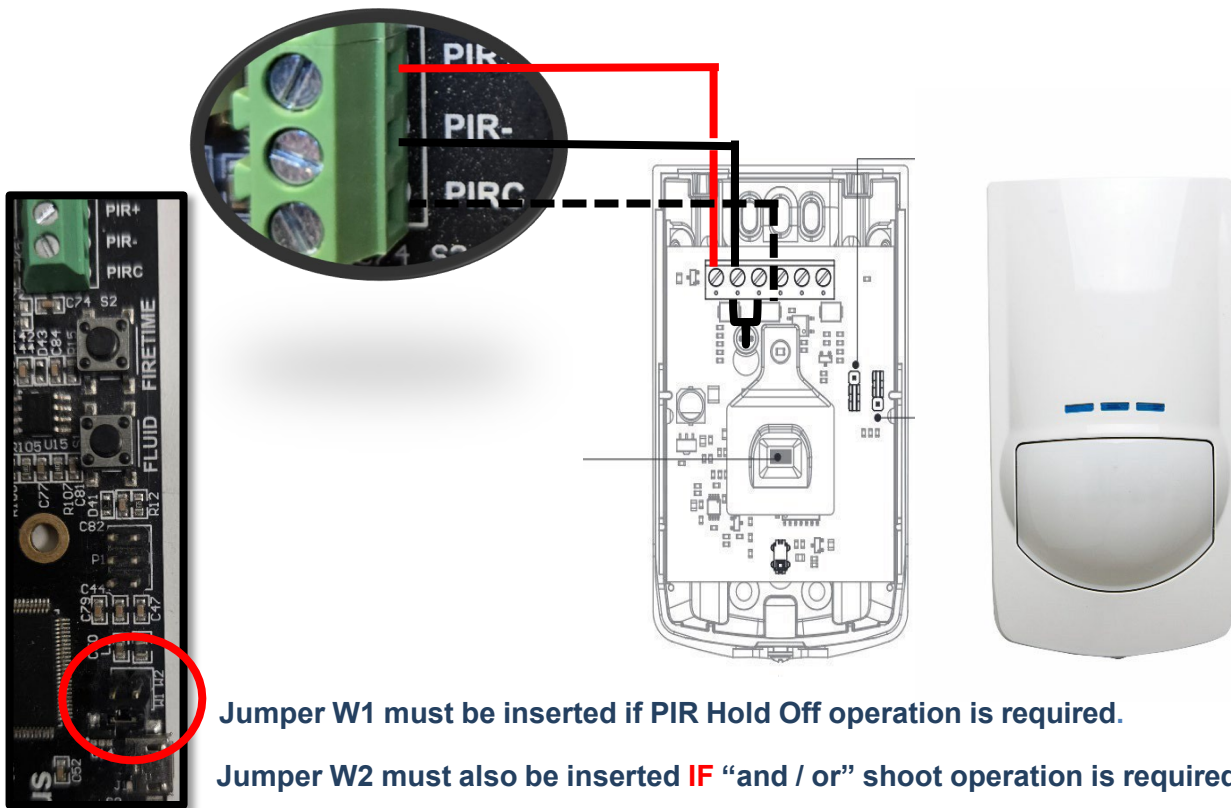


**HOLD OFF DETECTOR INPUT
MUST BE ENABLED BY
CLOSING JUMPER W1**

DETECTOR ACTIVATION TRIGGERS A FOG ACTIVATION

HOLD OFF PIR WIRING

PIR Alarm circuit normally closed - Goes open to alarm.

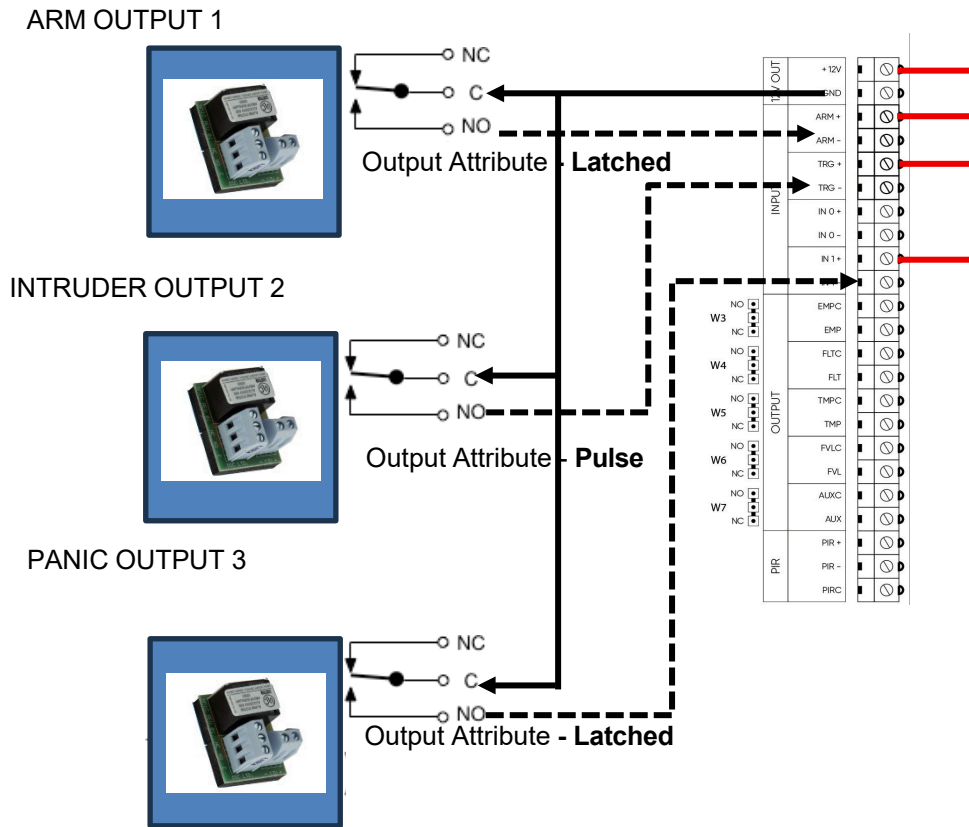


Jumper W1 must be inserted if PIR Hold Off operation is required.

Jumper W2 must also be inserted **IF** “and / or” shoot operation is required.

IMPORTANT: ALWAYS - Down power machine AC/ Battery for 30 seconds for changes to take effect.

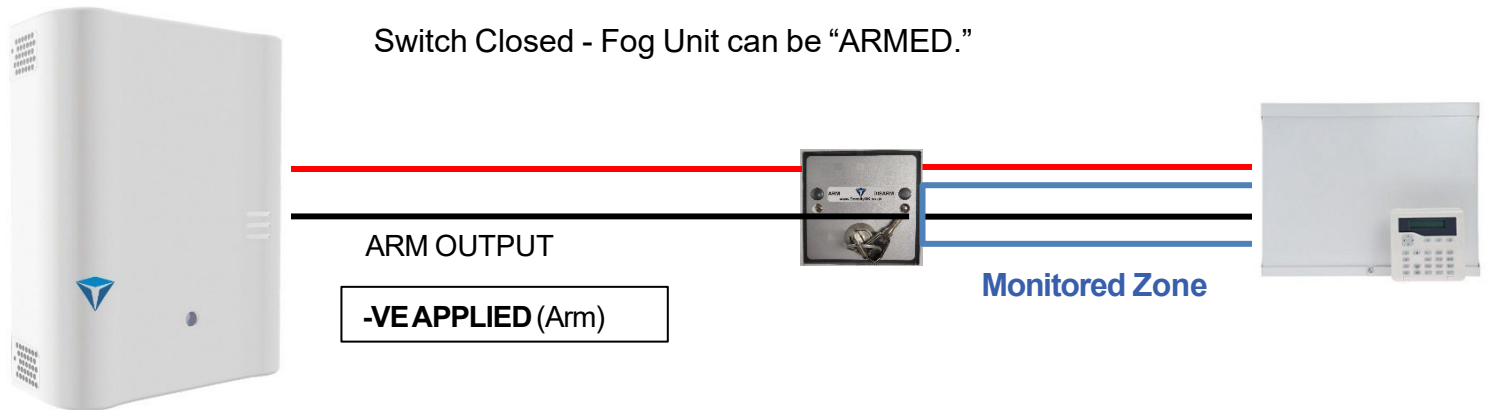
ARM, TRIGGER, PANIC Simple Relay Output – NEG Applied – Per machine



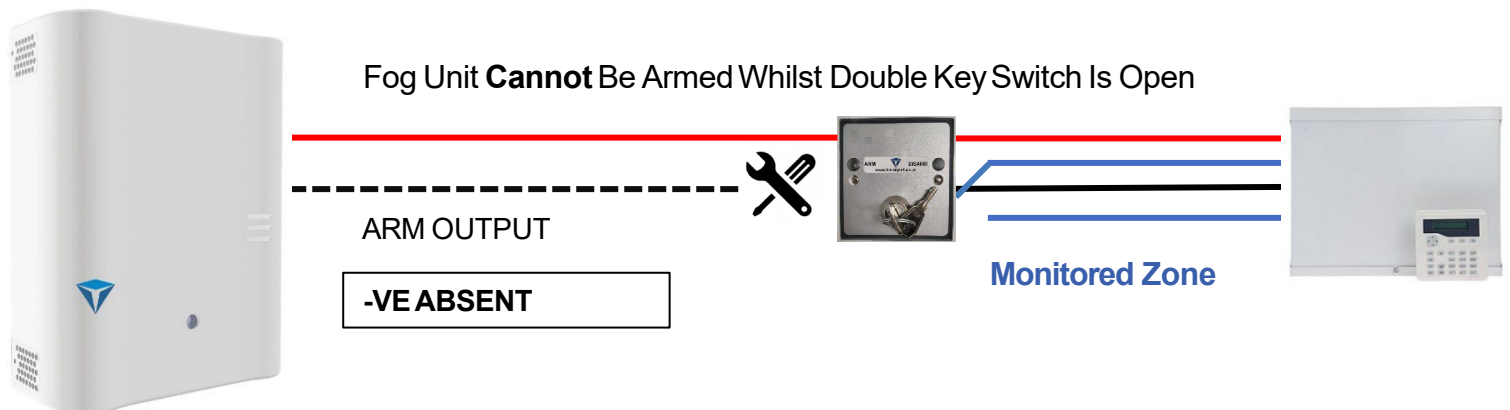
IMPORTANT: DIPSWITCH 5 Must be on to enable the HUA input. Down power machine (AC/ Battery) for 30 seconds for changes to take effect.

ISOLATION KEY SWITCH– Negative applied to “Arm”

Switch Closed - Fog Unit can be "ARMED."



Fog Unit **Cannot** Be Armed Whilst Double Key Switch Is Open



The monitored alarm zone must be set to an attribute that will ensure that the system cannot be armed whilst active (Density fog machine isolated)

Output signals

The fog machine has 5 RELAY driven outputs.

EMP = Empty fog refill

FLT = Fault

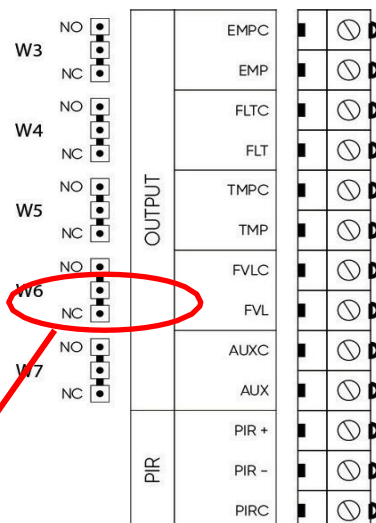
TMP= Tamper switch open

FVL = SHOOT verification

AUX= Auxiliary output **NOT USED**

By changing the position of a W# JUMPER, you select the relay output to be either NO (Normally Open contact) or NC (Normally Closed contact).

SET ALL JUMPER'S TO NORMALLY CLOSED OPERATION



Test and commissioning process

WARNING - Before testing remember that security fog can activate the fire system!! Always ensure that the fire system is on test.

- **Fluid** - Always press “fluid reset” when a new fluid cartridge is connected and before any tests. Ensure fluid box is dated.
- **Nozzle** - Ensure that it is angled to hit the floor and cover fog in the direction of the asset being protected.
- **Battery** – Ensure that install date is noted on the new battery and that it is securely cable tied.
- **Green LED** – Ensure is solid before carrying out tests & commissioning.
- **Blue LED** - Check that the “arm” output enables / disables the blue LED.
- **Isolation key switch** – Arm the system and check that the Blue Led extinguishes when the key switch is in the isolate position.
- **Isolation Key switch / monitored zone** – Check that the monitored zone on the intruder panel goes active.
- **Warning labels** – Ensure all warning labels are located at entry / exits points.
- **Test Shoot** – Shoot for a minimum of 10 seconds to check coverage and purge the system.

Optional - Hold off or “and or” Detector

- **DT Detector** – Should be labelled Density Fog
- **Test hold off trigger (W1)**. Set shoot time for 4 seconds - Arm system and trigger a confirmed output. Activate the DT Detectors field of view to test activation.
- **Test “and or” trigger (W2)**. Set shoot time for 4 seconds - Arm system and trigger a confirmed output. Remember to cover DT detector lens before testing the confirmed output operation. Tip – Use the DT Detector box to cover. Reset and rearm the alarm system. Test the DT by activating its field of view.
- **DT Detector - Re-fire operation** - After the 4 second trigger test shoot ensure that the Green LED” is solid before testing the DT Detector shoot operation. When ready remove the DT Detector cover to activate another 4 second test shoot via the detector.
- **Isolation Key Switch - Keys** – For security leave within the document box labelled “Fog Isolation.” If there is no document box, then it must be kept secure inside the intruder panel.

Note: If a 10 second commissioning test shoot is not possible due to environmental conditions, then 4 seconds is the minimum acceptable.

Entry / Exit – Ensure that the Density trigger detector does not cover part of the entry /exit route and cause false activations.

After all commissioning checks have been completed ensure that the fog machine shoot time is programmed in seconds in reference to the area to be protected.