Density®
INSTANT FOG PROTECTION

Installation and user manual

DENSITY HP6000 and HP14000

The Density® HP - High Performance- Fog Generators Family:
Density® HP6000 and Density® HP14000, is the result of research and development adapted to the current anti-intrusion security needs of large logistics platforms and industrial buildings.
Two different models: 2000 cubic meters and 4500 cubic meters fog coverage
Optional Remote monitoring and control with Active Cloud Lan board.
Solid state relay for heating safe control.

Version 2.5 September 2026

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WARNING!

All DENSITY fogging systems should only be used with DENSITY-branded fluids.
It is strictly forbidden to use any fluid not previously authorized in writing by DENSITY.

1. Package content

Inside the box you find:
- The Density HP unit
- 2 WARNING labels
- Wall Stand Bracket
- Fluid bag 4 or 5 liters “White Out Food Grade” depending on models

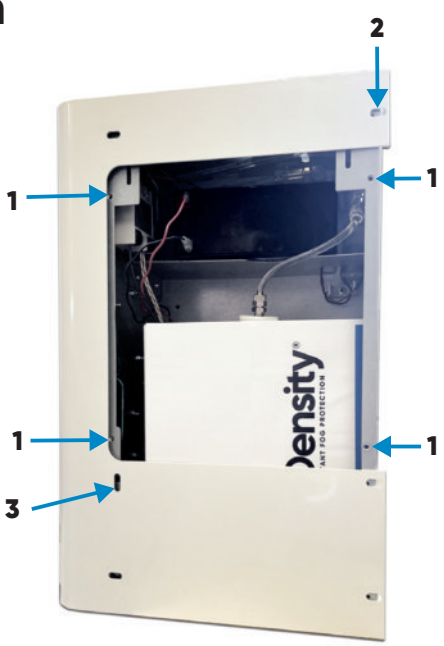
The Density® warning labels must be positioned on the window close to the protected premise, to notify fogging system presence.
These warning labels are self-adhesive, double side printing.

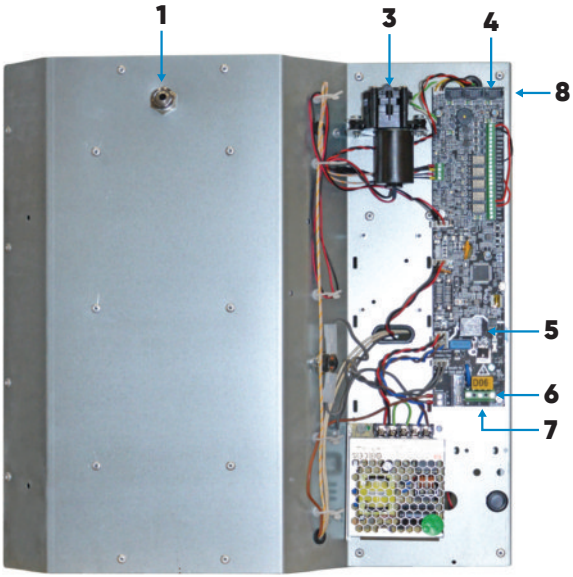
2. Prepare for Installation

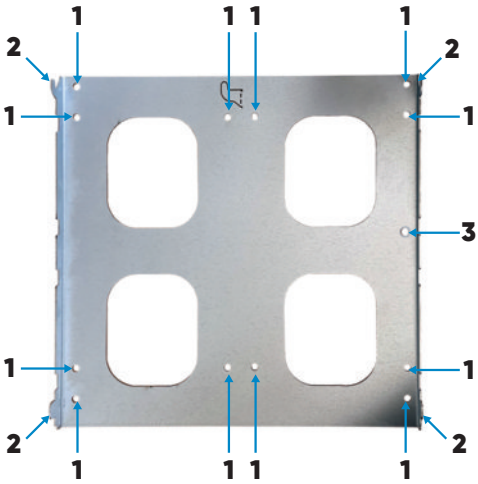
NOTE:
It is mandatory to always install Density® HP fog generators (HP 6000 and HP 14000) in a vertical position.

Unscrew the 4 side door screws (1) located on the right of the unit.
Note: the red line shows the tamper screw of your Density® HP Fog Generator.

Remove the set of screws (2) located around the lid.
The nut of the screw (3) is locked and needs to be unscrewed from inside this compartment.







Identification of main components:

1. Orientable nozzle
2. Terminal blocks
3. Fluid pump
4. IP/LAN connection
5. Power terminal block
6. Ground connection
7. Main power connection
8. Battery compartment location (inside, over Density® fog refill)

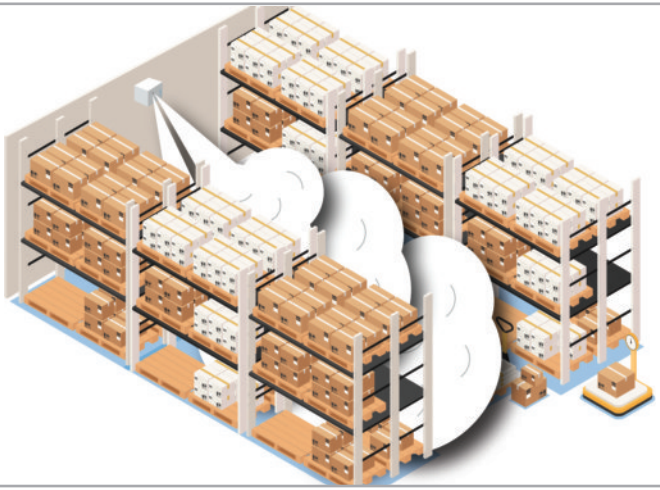
Fixing screws:

1. Screws for mounting bracket of the Density® HP family
2. Attachment hooks to the Fog generator
3. Anti Lift

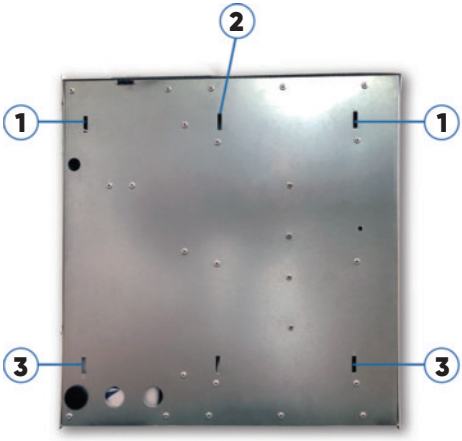
NOTE:
It is necessary to make sure that installation place of your Density® HP Fog Generator supports the weight of the device.

3. Recommendations

The fog spreads more quickly if it bounces strongly against obstacles.
It is therefore advisable during installation to make sure that the fog flow hits the ground for a better diffusion.
In order to achieve the maximum efficiency described in the shooting table (paragraph 12), it is recommended to install the fogging system on the wall, in the middle of the place to be protected, within the height limits described below for the chosen fogging systems model, with nozzle oriented to the ground (paragraph 6).

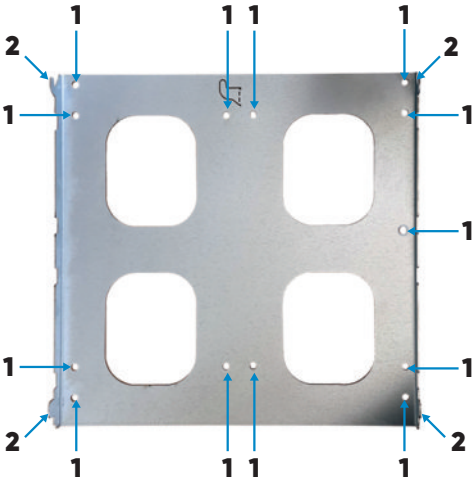
Maximum installation heights of **Density® HP** Fog Generators	
MODEL	**WALL INSTALLATION ONLY**
	
Density® HP6000	From 3 to 4 meters
Density® HP14000	From 3,50 to 4,50 meters

4. Mounting

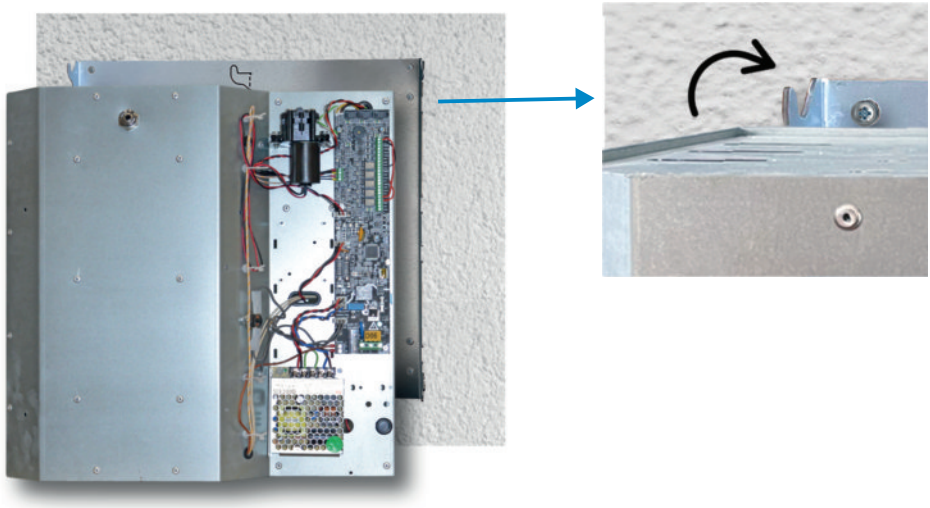


1. Hooks notches on the wall mounting brackets. (top)
2. Extra hook notch if necessary
3. Straight fasteners locations. (bottom)

Locations for the wall mounting plate.
Holes (1) must be inserted first by a lever action on the mounting bracket.
Be careful to keep the Density® HP generator in a vertical position.



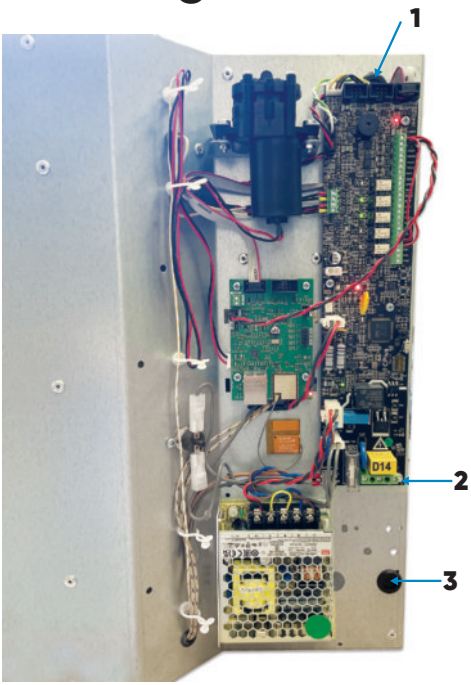
Position the mounting bracket on the wall and drill into the holes (1) to secure it.
Be careful to place the support hooks (2) **on top**.



Hang the Density® HP Fog Generator by positioning the top openings of the device on the mounting bracket hooks, previously securely fixed on the wall, by a lever action.

You only need to lower the Fog Generator to insert the lower parts into the slots provided for this purpose.

5. Wiring



Command cables as power wires needs to be inserted on back side of the unit. (1)

Live, Neutral, and Earth are screwed on connector (J3).

1. Hole for alarm panel wires/ command cables
2. Connection to 230V power supply
3. Power supply hole

6. Nozzle adjustment

Use a 14 mm wrench to loosen the nozzle nut.
Use a screwdriver inserted into the nozzle hole to adjust the inclination.

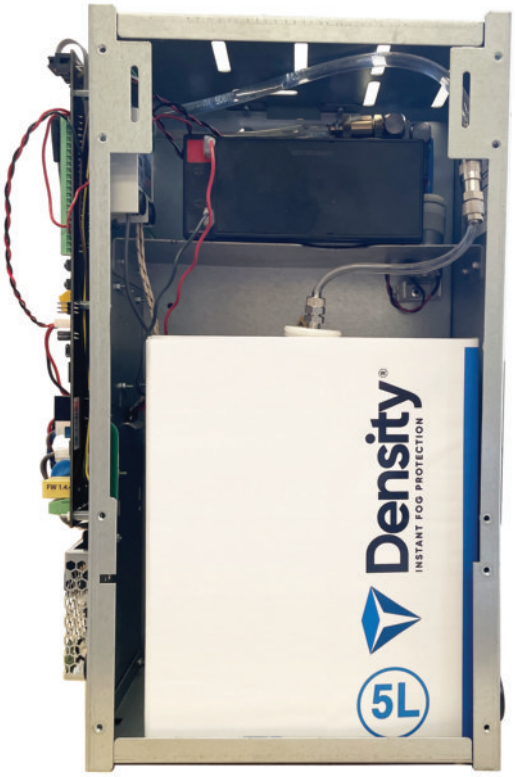
Hold the nozzle in the correct position by using the screwdriver and gently tighten the nut.

On Density HP models to prevent an intentional nozzle obstruction that could void the fog emission, a pneumatic verification activates to check that nozzle is not voided. If verification fail a tamper warning signal is activated and send to the alarm panel.
The pump activates in 3 conditions:

1 - during maintenance when fluid reset is pressed;
2 -when the system is armed;
3 - after the trig to prevent further nozzle obstructions.

NOTE: To prevent the complete discharging of the backup battery, compromising its charging capabilities, the air pump is activated only in the presence of mains power.

7. Backup battery



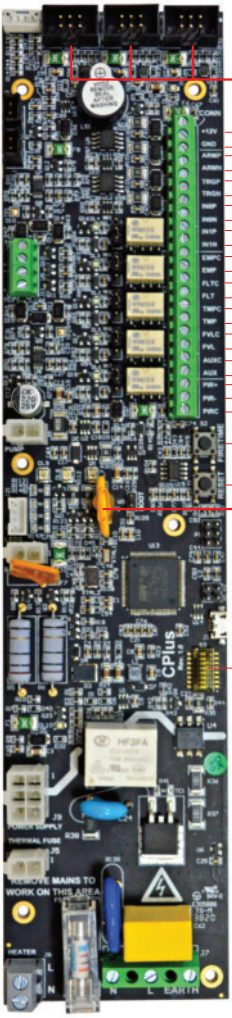
Insert the 7,2Ah battery into the compartment on the right side

Connect the backup battery*, to the corresponding colour wires.

When the Fog Generator is activated without any backup battery connected, the red LEDs will light up.

* We recommend using a FIAMM FG 20721 12V 7,2Ah battery type or equivalent.

8. Connections



Density® family devices are equipped with CPLUS board that includes 4+1 inputs and 5 outputs.

INPUTS

Description of the 4 inputs:

Input 1: ARM -to arm and disarm the Density fogging system.

Input 2: TRG -to activate shooting (only if ARM input is already enabled).

Input 3: IN 0 -input confirmed works in AND wIthinput 2 (TRG).

Input 4: IN-1 -Panic/robbery alarm input.Activate the shooting regardless of the state of the ARM input.

The 4 input contacts are equipped with galvanically isolated opto-couplers and, by default their condition is NC (Normally Closed), so with 12V DC present (Dipswitch 6 ON).
It is possible to select if ARM, TRIG and IN 0 inputs are all three in NC or NO (Normally Closed or Normally Open).

Change activation logic (NC Normally Closed or NO Normally Open).

Moving DIPSWITCH 6 to OFF, the 3 inputs ARM, TRG and IN-0 will work in standard security, this means that the three inputs will be activated in the presence instead of the absence of the + 12V signal.
WARNING: in this condition, even ifthe IN 0 input is not used, it must be permanently connected to the 12V signal to authorized the activation.

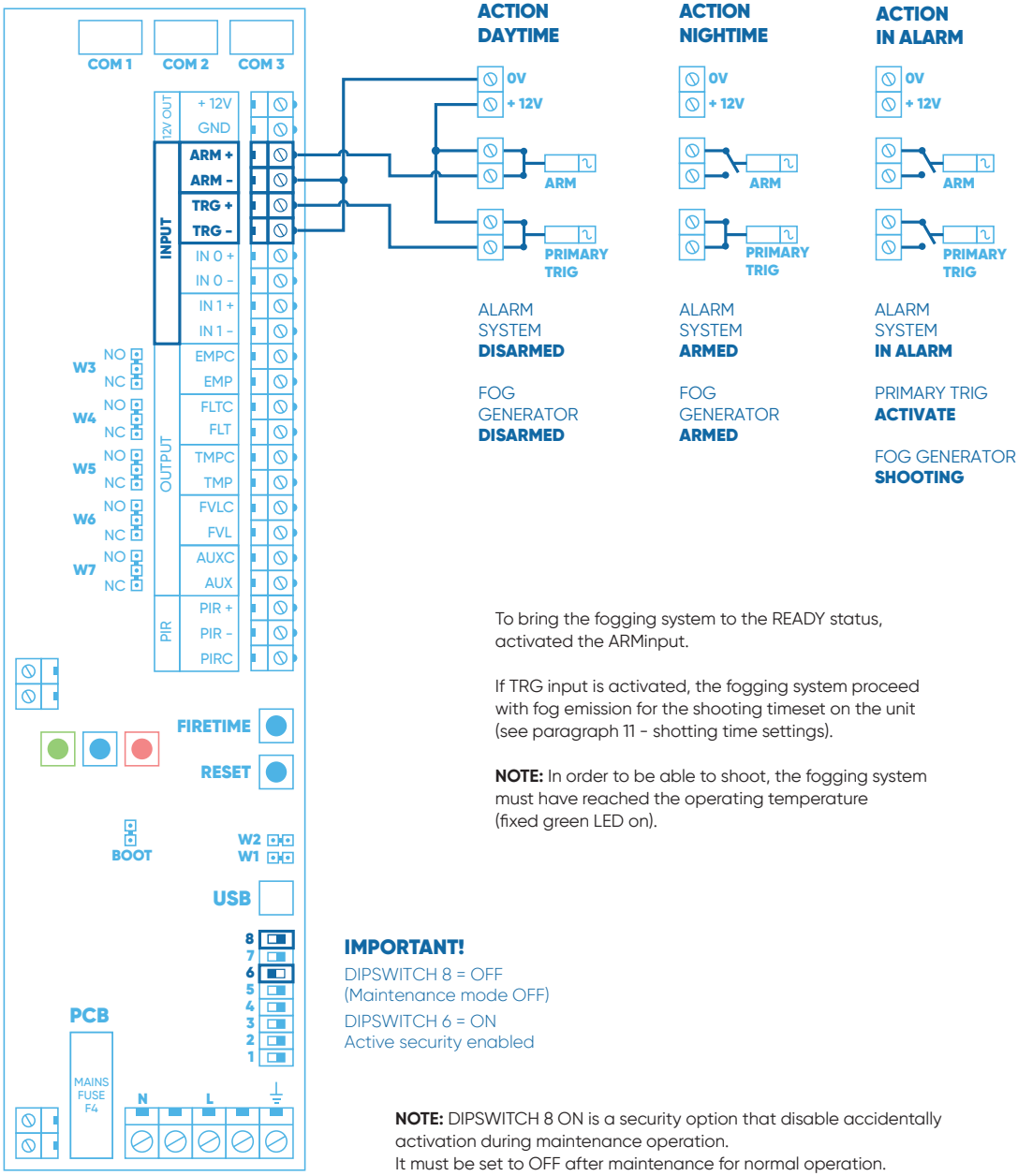
PIR sensor input:
All density family device can prevent false activations controlling an optional local PIR positioned near the device. It means that to generate the shoot,PIR signal must be activated together with TRIG command is sent from the alarm panel.

PIR+ Power supply PIR +12V 300 mA
PIR- Power supply PIR -12V 300 mA
PIRC Contact signal-closed to negative (from PIR C to PIR -)

To activate this input close the W1 jumper. The closed W1 jumper activates this PIR input as AND input with the TRG input. This means that the fogging system device will shoot when both TRG and PIR inputs are active at the same time (always on active ARM input).

9. Examples of connections – Inputs signals

9.1 Arm and Trig in Active security installation



To bring the fogging system to the READY status, activated the ARMinput.

If TRG input is activated, the fogging system proceed with fog emission for the shooting timeset on the unit (see paragraph 11 - shotting time settings).

NOTE: In order to be able to shoot, the fogging system must have reached the operating temperature (fixed green LED on).

IMPORTANT!

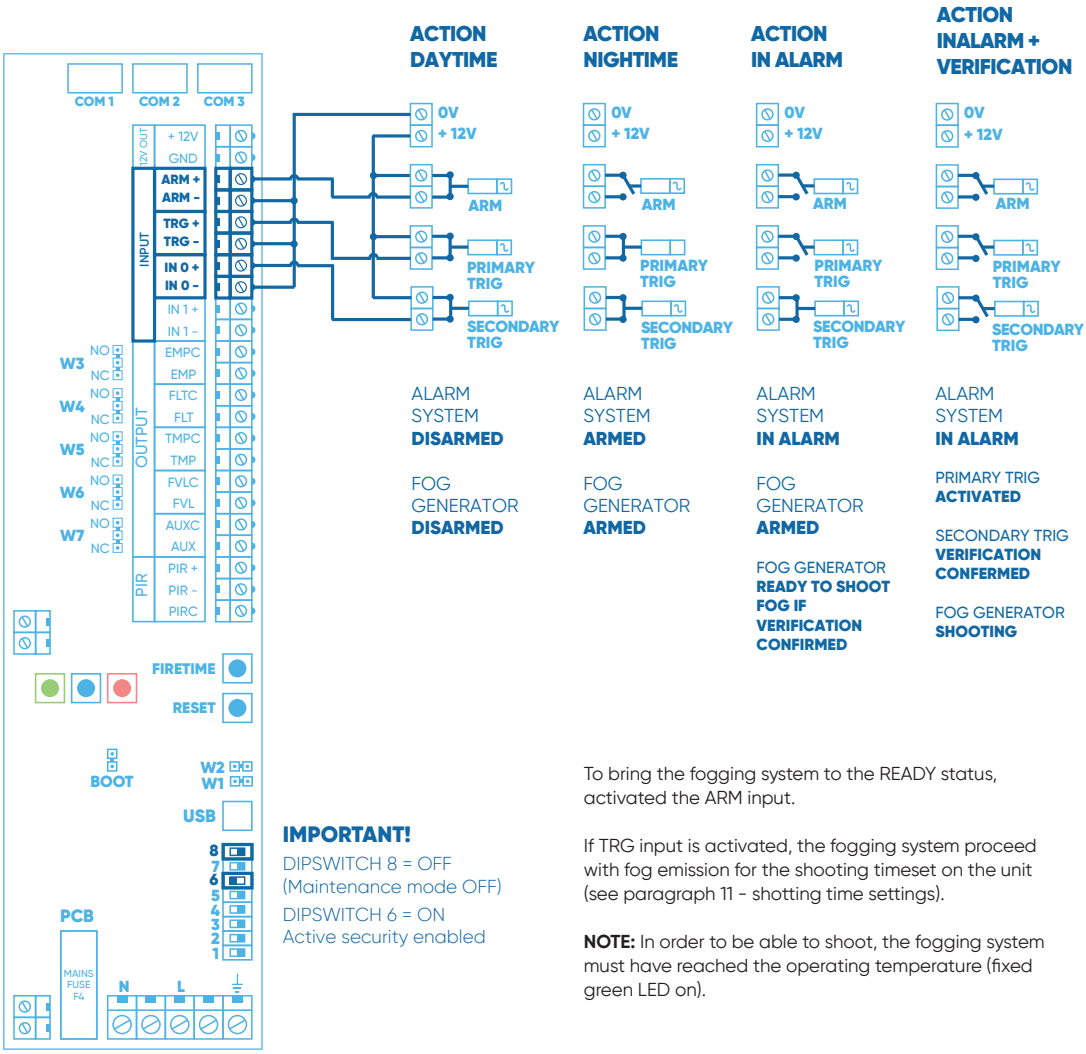
DIPSWITCH 8 = OFF
(Maintenance mode OFF)

DIPSWITCH 6 = ON
Active security enabled

NOTE: DIPSWITCH 8 ON is a security option that disable accidentally activation during maintenance operation.
It must be set to OFF after maintenance for normal operation.

9.2 ARM, TRIG + IN 0 Verification Input in active security installation

If an additional verfication input is required before fog emition it is possible to activate the IN 0 Input .



IMPORTANT!

DIPSWITCH 8 = OFF
(Maintenance mode OFF)

DIPSWITCH 6 = ON
Active security enabled

To bring the fogging system to the READY status, activated the ARM input.

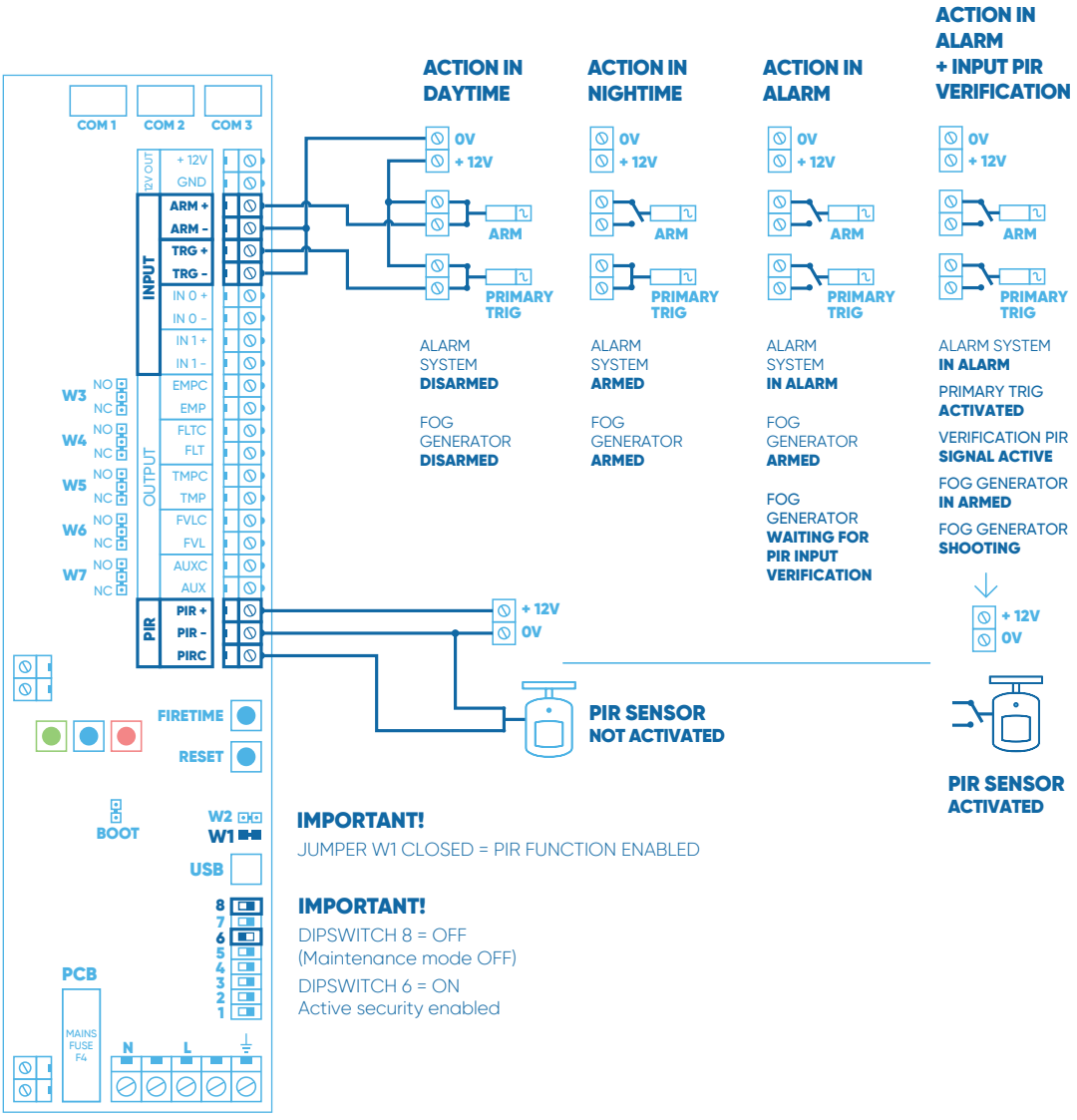
If TRG input is activated, the fogging system proceed with fog emission for the shooting timeset on the unit (see paragraph 11 - shotting time settings).

NOTE: In order to be able to shoot, the fogging system must have reached the operating temperature (fixed green LED on).

NOTE: DIPSWITCH 8 ON is a security option that disable accidentally activation during maintenance operation. It must be set to OFF after maintenance for normal operation.

9.3 ARM, TRIG, PIR verification (PIR input) in Active Security Installation

When the fogging system is armed, the TRG and PIR inputs must be active AT THE SAME TIME for the shooting to take place.



IMPORTANT!

JUMPER W1 CLOSED = PIR FUNCTION ENABLED

IMPORTANT!

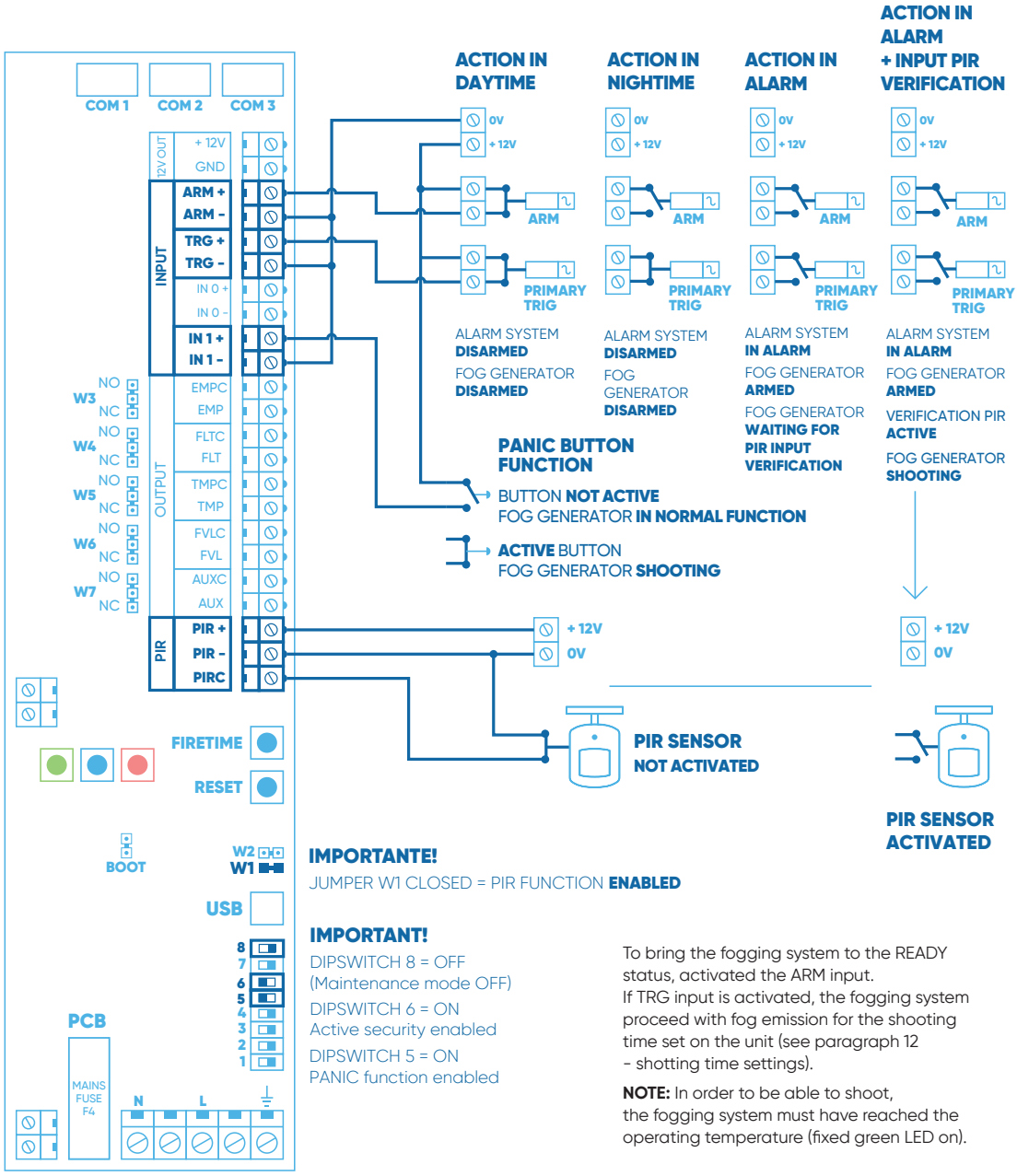
DIPSWITCH 8 = OFF
(Maintenance mode OFF)

DIPSWITCH 6 = ON
Active security enabled

NOTE: DIPSWITCH 8 ON is a security option that disable accidentally activation during maintenance operation. It must be set to OFF after maintenance for normal operation

9.4 ARM, TRIG, PIR and PANIC BUTTON in Active security installation

The PANIC input is used for emergency immediate activation. The PANIC input DOES NOT take into account the status of the inputs ARM, TRG, IN 0 and PIR. The fogging system must in any case be in a HOT and READY state (fixed green LED on).



IMPORTANTE!

JUMPER W1 CLOSED = PIR FUNCTION **ENABLED**

IMPORTANT!

DIPSWITCH 8 = OFF
(Maintenance mode OFF)

DIPSWITCH 6 = ON
Active security enabled

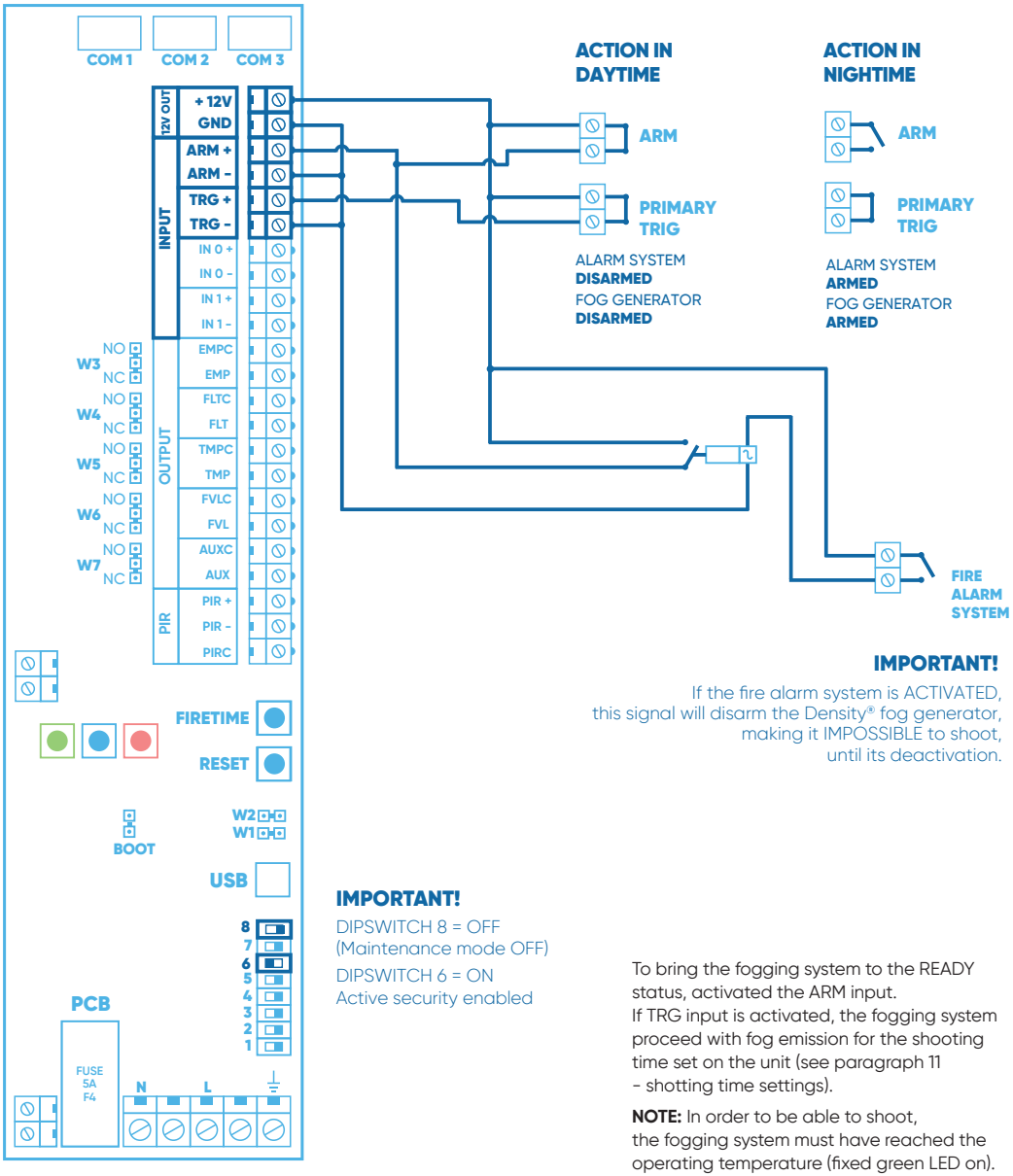
DIPSWITCH 5 = ON
PANIC function enabled

To bring the fogging system to the READY status, activated the ARM input.
If TRG input is activated, the fogging system proceed with fog emission for the shooting time set on the unit (see paragraph 12 - shotting time settings).

NOTE: In order to be able to shoot, the fogging system must have reached the operating temperature (fixed green LED on).

NOTE: DIPSWITCH 8 ON is a security option that disable accidentally activation during maintenance operation. It must be set to OFF after maintenance for normal operation

9.5 Optional connection to the fire protection system



IMPORTANT!

If the fire alarm system is ACTIVATED, this signal will disarm the Density® fog generator, making it IMPOSSIBLE to shoot, until its deactivation.

IMPORTANT!

DIPSWITCH 8 = OFF
(Maintenance mode OFF)

DIPSWITCH 6 = ON
Active security enabled

To bring the fogging system to the READY status, activated the ARM input.
If TRG input is activated, the fogging system proceed with fog emission for the shooting time set on the unit (see paragraph 11 - shotting time settings).

NOTE: In order to be able to shoot, the fogging system must have reached the operating temperature (fixed green LED on).

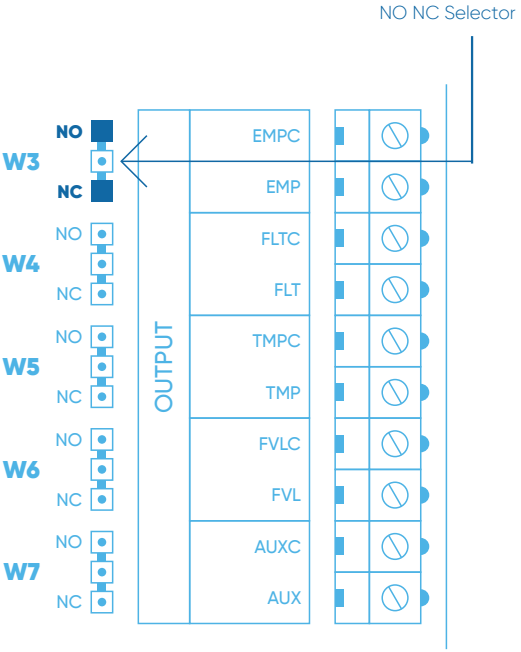
NOTE: DIPSWITCH 8 ON is a security option that disable accidentally activation during maintenance operation. It must be set to OFF after maintenance for normal operation

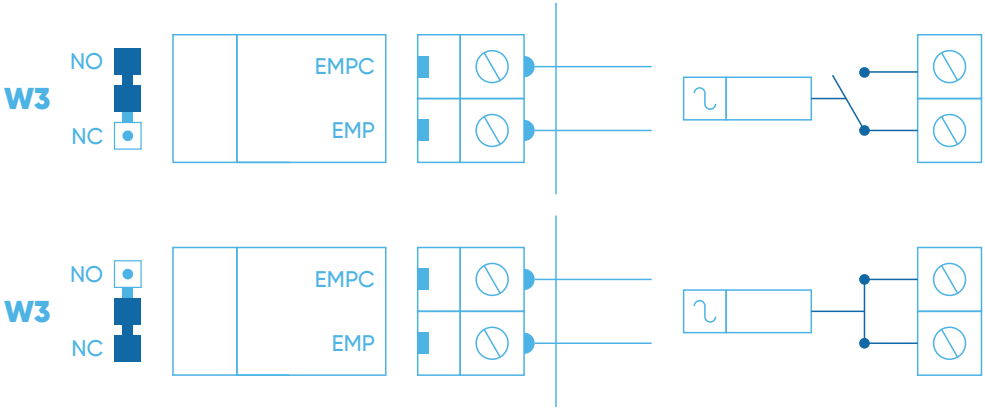
10. Examples of connections - Outputs signals

On CPLUS board
it is possible to connect up to
5 OUTPUTS signals:

EMP = empty bag OR LOW FLUID RESERVE
FLT = Fault/ Maintenance required
TMP = unit void-Tamper switch open
FVL = Shot validation/ shoot in progress
AUX = Reserved output

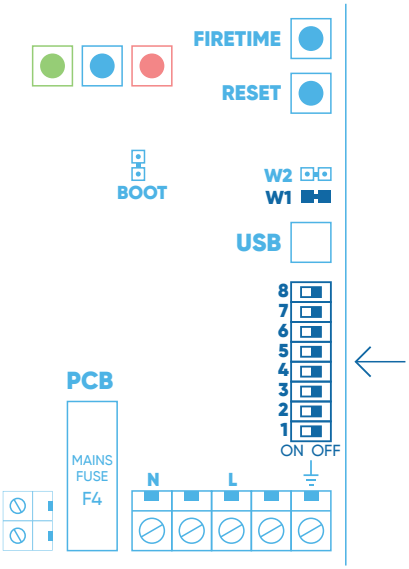
Each output is with Relay (CLEAN CONTACT) and has its own jumpers W3 - W4 - W5 (Default NO) are used to choose between NO (Normally Open) and NC (Normally Closed) for the output. W6-W7 should not be moved from the default position.





When the output is active, the voltage is applied to the relay generating the status change. Instead, by placing Dip Switch 4 in ON, ALL relays will be programmed in NC active mode. In this condition the alarm system will receive a fault signal if the fogging system loses power completely (active security).

11. Dipswitch



On CPLUS electronic board there is a DIPSWITCH with 8 Options.

Default functions:

SW 1 OFF = FVL relay active for 30 seconds after the shooting
ON = Active during all fog emission

SW 2 OFF = Front LED active
ON = Front LED disable

SW 3 OFF = Buzzer Active
ON = Buzzer mute

SW 4 OFF = All relay outputs with logic in NO mode (passive security)
ON = All relay outputs with logic in NC mode (active security)

SW 5 OFF = PANIC button function disabled
ON = Panic button function able

SW 6 ON = ARM, TRG and IN 0 inputs in NC mode (Active security)*
OFF = ARM, TRG and IN 0 inputs in NC mode (Passive security)*

SW 7 OFF = Not Used

SW 8 OFF = Fogging System in normal mode (Not in Service mode)
ON = Fogging System in service mode

* Active security means a configuration where relays are electrically activated NC at rest.

WARNING: the installer must have clear scenarios of this mode of installation because the lack or a particularly low level of power (< 9V DC) related to the alarm system would involve the activation of the fogging system (with unused PIR input or PIR powered by alarm control panel).

IMPORTANT:
To change switch position it is necessary to completely remove power to the device (both mains and backup battery) wait 20 seconds and then powerit again on

EXCEPTION: To set the fogging system in SERVICE mode, after moving Dip 8 to ON it is NOT necessary to restart the system.
In SERVICE mode the functions of the fogging system are disabled.
Returning the Dip 8 to OFF the fogging system will return to normal operation.
During SERVICE mode the three front LEDs Green/Blue/Red will flash sequentially.

Boot jumper: RESERVED for firmware update.
If W1 and W2 are both inserted there is no need for TRIG signal to be active to shoot: provided that all necessary conditions are met, an active state on either TRIG or PIRC input will trigger a shoot, independently from one another.

12. Shooting time setting

The Fog Generator can be programmed to shoot the correct quantity of fog to fill the different volumes of the area to be protected. Use the table below to find the right setting (in seconds), suitable for the Density® HP range Fog Generators and the volume you want to protect.

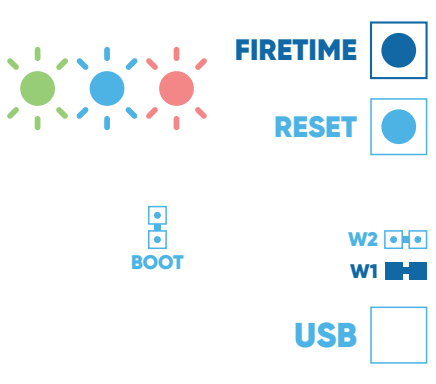
Density® HP6000 and Density® HP14000 shooting table (m^3 according to the entertainment fog industry)			
Density® HP6000		**Density® HP14000**	
sec.	**m^3**	**sec.**	**m^3**
33	2079	30	2025
38	2394	50	3375
43	2709	60	4050
48	3024	80	5400
53	3339	90	6075
58	3654	110	7425
65	4095	120	8100
70	4410	140	9450
80	6000	150	10125
		160	10800
		180	12150
		200	14000

NOTE: to make setting easier each second of FIRETIME button pressed is equal to 10 seconds of generated fog. (Example – FIRETIME pressed for 4 seconds = 40 seconds of fog flow.)

If the maximum shooting time is setted during setup, the unit automatically activates a special operating shooting mode that allows to generate as much fog as possible, till thermal conditions are still able to convert fluid to fog. In this condition unit is able to generate even more fog than declared value.

Although the Cenelec 50131-8 2019 indicates in 1 meter, the minimum limit for visibility in fog to prevent theft, under certain conditions or due to the particularly high value of the goods to be protected, it may be necessary to further reduce this limit up to 0.50 meters. To obtain this result multiply the value in the table by three.

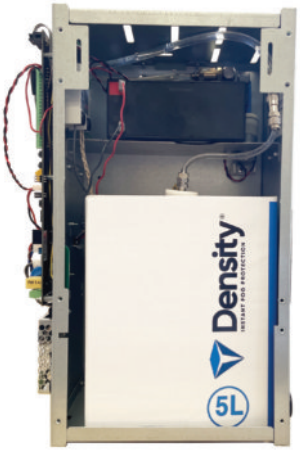
How to set the shooting time



Press and hold the FIRETIME button.
Count the number of LED flashes
(the buzzer will beep synchronous with the LEDs).

EXAMPLE:
To set 40 seconds as shooting time, you need to hold the button «FIRETIME» while counting the flashes. When you reach the 4 flashes, simply release the button and the time will be automatically set at 40 seconds.

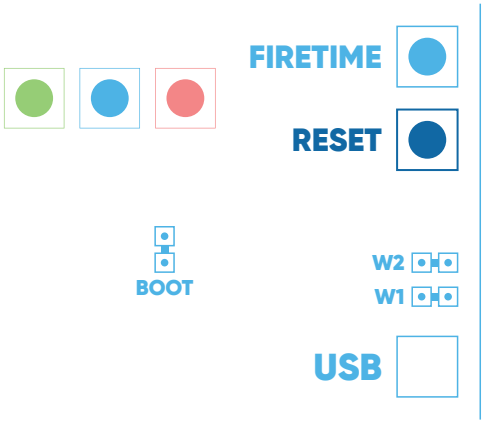
13. Fog fluid refill system



The fluid bag refill (4000 ml for Density® HP 6000; 5000 ml for Density® HP 14000) fits easily into the compartment located on the side of the Density® Fogging system.

Connect metal connector to the pipe connected to the fluid PUMP.

Fluid measurement system RESET



IMPORTANT!
When inserting a new refill or replacing an empty one, you must RESET the fluid measurement system.
To do this simply hold the RESET button for 3-4 seconds until the confirmation tone is heard.

14. Front LED'S

HEATING

Green LED

Slow flashing: the heating process is on going. At this stage, the Density® but it is still not ready f or shooting.

Fast flashing: the heating process has exceeded the minimum level for which the Density® fogging system is able to shoot, but is not able to make the maximum shooting time.

Fixed light ON: The device is warm and ready for maximum fog shooting.

ARM

Blue LED

Fixed light ON: The fog device is armed and, if it's warm, it's ready to shoot.

FAULT

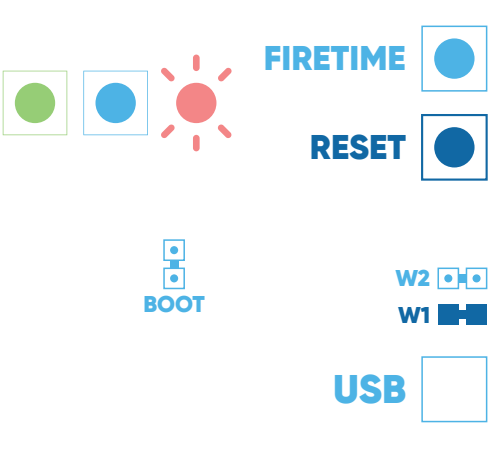
Red LED

Fixed light ON: presence of errors (including E13 fluid in reserve). See paragraph 15. Faults

Fast flashing: Empty or not connected fluid tank (Fault 15)

15. Faults

To READ the faults:
PRESS and RELEASE the RESET button.
Count the number of the red LED flashes. The buzzer will emit an acoustic signal synchronous with the LED.
The number counted is the ERROR present in the device.



Faults 1 to 6 are system faults that need to be carefully examinated.
Please contact support.

7 No presence of Backup Battery
8 Low voltage of the battery
9 No power supply
10 Low power supply
11 Overcurrent on the pump
12 Short circuit in the pump
13 Low fluid level
14 No fluid detected

NOTICE:
Fixed red light = the refill is EMPTY or in reserve. Or there is another error (see list above).
Fast flashing light = Density device did not detect any fluid (empty refill or incorrect connection).

BUZZER: The internal buzzer will sound permanently for 5 minutes when it detects an error.
After 5 minutes, it will emit 1 single «BEEP» per minute.

16. Final test - Yearly maintenance

At the end of intallation it is possible to proceed with a shotting test to verify the installation was correct. Before the shooting test, please follow this checklist:

1. Verify connection and all signals to and from the alarm system.
2. Verify unit has reached the correct temperature (green LED fix on).
3. Verify that arming the alarm panel the blue led on Density turnes ON.
4. Suggested time for shooting test 40 seconds.
5. Provide complete and exhaustive INSTRUCTIONS to the end user with warning notes if panic button is installed.
6. After the test remember to reset the fluid counter pressing RESET button, and remember to set again the correct shotting time.

On yearly maintenance verify the battery voltage level . It is also possible to perform a complete shoot without mains power to deeply test the battery performance.
It is suggested to replace the fluid bag if installed from more than 3 years.

17. Technical specifications

	Density® HP6000	**Density® HP14000**
Rated mains voltage	230 VAC	230 VAC
Nominal energy consumption	600 W	600 W
Average energy consumption	80 W	110 W
Heating time (cold start)	210 min.	480 min.
Heating time (after full shot)	110 min.	300 min.
Maximum shot time	80 s	200 s
Fog volume (max shot timr, Density fog std)	6000	14000
Number of full shots on 1 fluid container (4000 ml)	3	-
Number of full shots on 1 fluid container (5000 ml)	-	2
Fuse	6A	
Dimensions	435 mm x 440 mm x 305 mm	
Weight	50 kg	59 kg

18. Warnings

1. This appliance is not intended for use by person (including children) with reduced physical, sensory or mental capabilities, or lack of experience and know ledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

2. Children should be supervised to ensure that they do not play with this appliance.

3. The machine must be installed without blocking escape routes.

4. Verify the fog does not limit the visibility near: stairs, moving objects that may cause falls, injuries or any damage to people.

5. When using the product in multi-storey buildings, if the escape route runs through an area which is protected by a fogging system, it is recommended to install a vocal warning that provides instructions on the behaviour to follow.

6. Do not look directly into the nozzle. Do not add any other substance into the bags.

7. The nozzle may reach high temperatures, touching it may cause burns.

8. When Density® generates fog avoid staying closer than 1 meter from the unit.

9. Before testing Density®, remember to report it in advance to the firefighters in your area to avoid false alarms.

10. Remember to put warning labels reporting the installation of Density® unit on the entrance windows.

11. Report installation to the firefighters in your area and to other institutions, if needed.

12. It is necessary to add an external switch to separate the fog generator from the alarm system, it should be activated before the maintenance to avoid that input tests, for example, it can activate the fog generator.

13. Never direct the fog flow towards an object or a w all less than 2 meters away and, if possible, increase the suggested minimum distance. Thanks to the power of the flow, Density® reaches and exceeds more than 10 meters away in the first 3 seconds from the nozzle.

14. Avoid "overshooting" even if the produced fog is dry and generally doesn't leave residue, a shot that goes far beyond the recommended seconds can create residue.

15. Install the unit considering paragraph 2 to avoiding possible tampering.

16. Do not move the unit when it is still hot.

17. The main body of Density®, which has the heating system enclosed inside a metal frame, should not be opened unless by specific and authorized service centers. Do not open and touch for any reason the insulation before 24 hours Density® has been shut off. The internal part may reach really high temperature.

18. Do not shoot the Density® unit before the installation is completed.

19. Insert the fluid bag as the last procedure and verify the anti-tampering function.

20. When the installation is finished, always test the system.

21. Install Density® avoiding any obstacles in front of it which can prevent the spreading of the fog.

22. Density® should not be exposed to water spray or dripping.

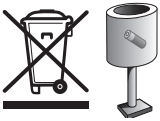
23. Request to Density® or its distributors to take part in courses for installers to ensure the optimal installation of the equipment.

24. The content of the fluid bags is mechanically predetermined and can be subject to variations +/-10%.

19. Warranty

The warranty of DENSITY is two years and is handled directly from the dealer or authorized installer, so please contact your supplier to take advantage of warranty with the copy of the purchase document that contains the serial number of the unit. Not included in the warranty: moving parts and/or damages depending on the incorrect use unless it is found a manufacturing defect in origin.
Fluid and bags are not covered by warranty.

BY BREAKING THE SECURITY LABELS AND THE OPENING OF THE UNIT
YOU WILL ACCEPT WHAT IS WRITTEN ON THIS MANUAL AND
ON THE WEB SITE: www.densityglobal.eu



We recommend to throw away the batteries in the appropriate waste containers for recycling. Heavy metals contained in them are recyclable.

RESELLER/INSTALLER STAMP
(company to contact for the warranty)

Serial number _____

Date of installation _____

Signature of installer _____

At the end of the installation, write down the identification number of the units, the date of the installation and sign in the dedicated spaces.

20. Maintenance form

DATE	BATTERY EXCHANGE		BAG EXCHANGE		SIGNATURE
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	
	YES	NO	YES	NO	

It is mandatory to fill out this table in accordance with the security rules

Density®
INSTANT FOG PROTECTION

Version 2.5 July 2025