UR FOG MODULAR

UR FOG MODULAR PLUS

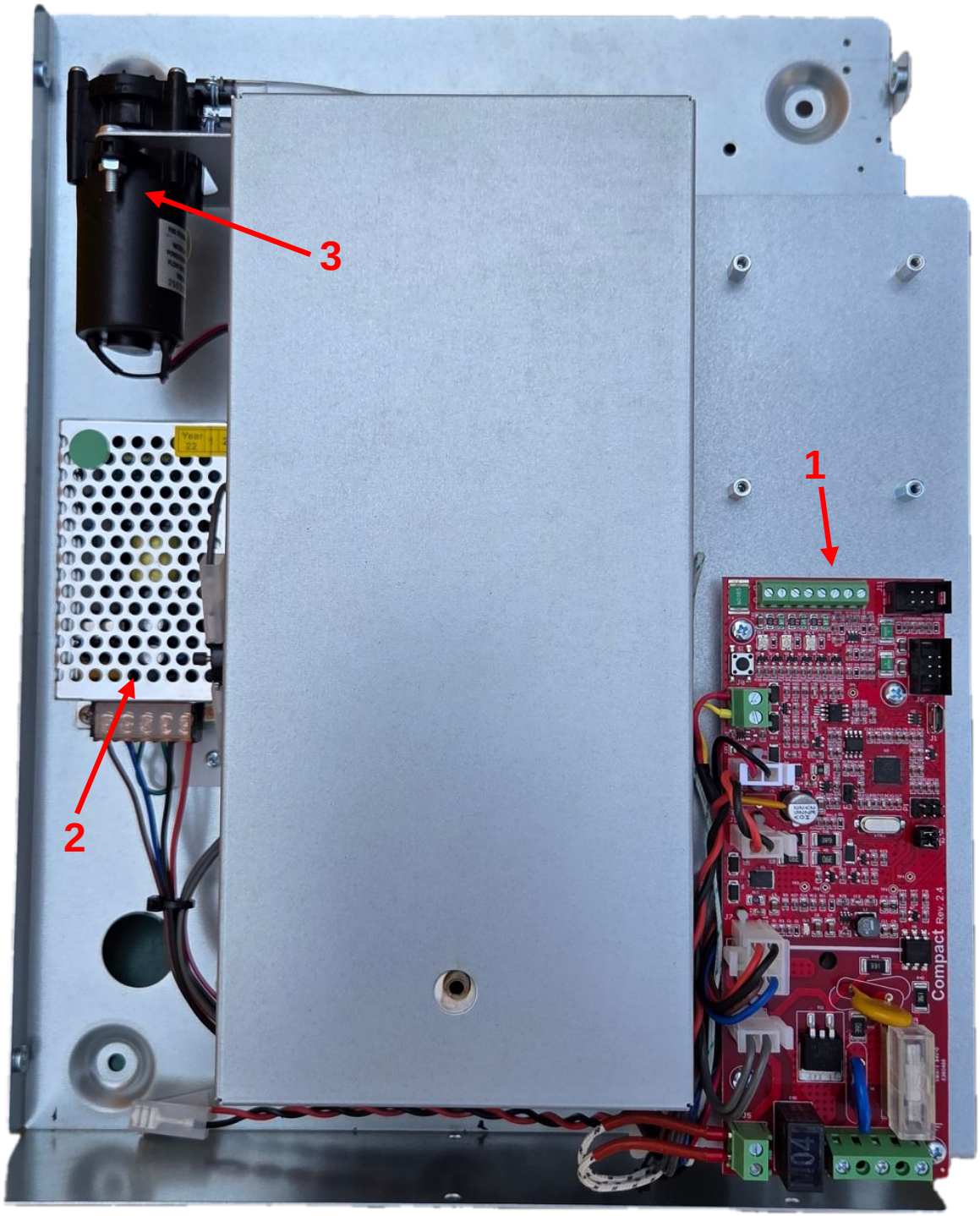
ANNUAL MAINTENANCE PROCEDURE

Modular and Modular Plus Lines

Models

Modular 200/300/400/500/800
Modular 2 Plus/3 Plus/4 Plus/5 Plus

Document revision	2.1.3 — June 2026
Reference standard	EN 50131-8:2019
Intended audience	Qualified maintenance technicians
Service interval	Annual (mandatory)
Estimated duration	15 minutes (excluding warm-up and additional tests)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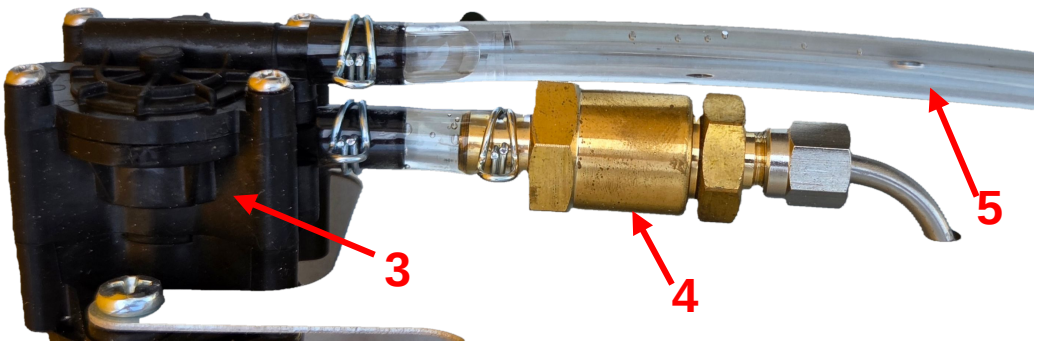
Compact Rev. 2.4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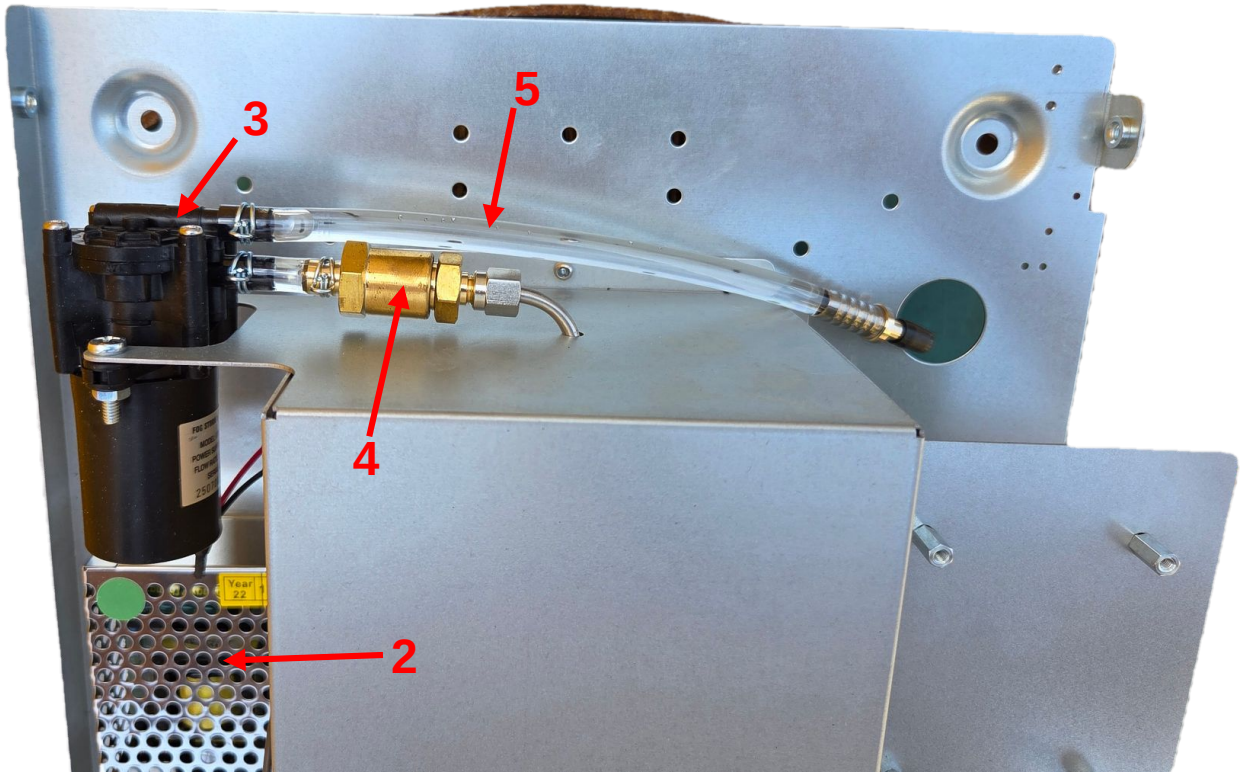
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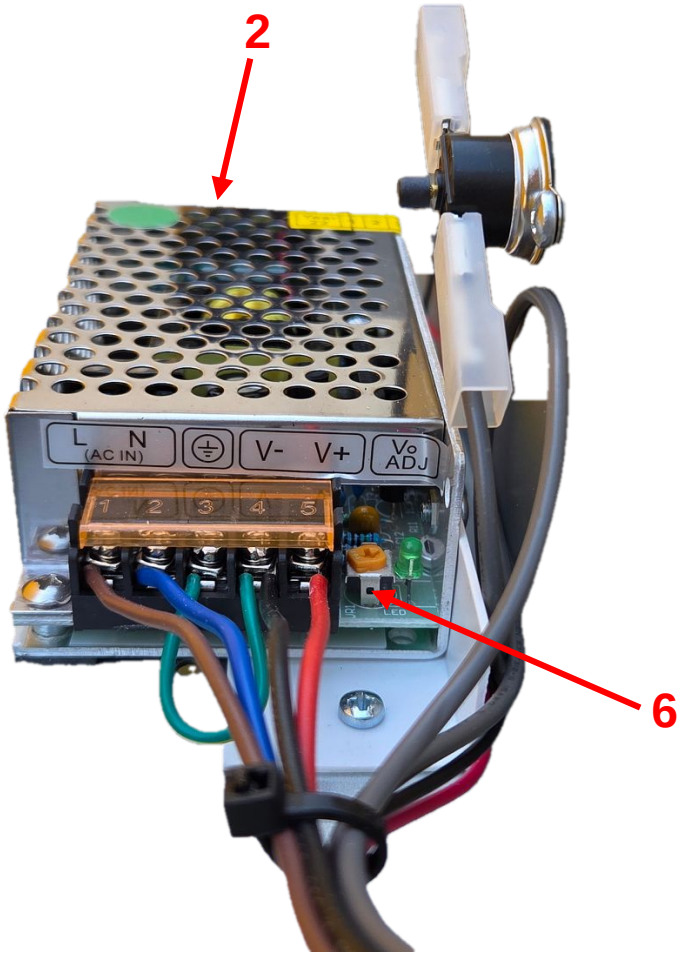
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1. INTRODUCTION AND SCOPE

UR FOG fog generators in the Modular and Modular Plus lines are designed to the highest quality standards. As with any security device, mandatory annual maintenance must be performed in order to:

- comply with the EN 50131-8:2019 standard (where applicable);
- ensure the correct operation of all components (batteries, sensors, pumps, valves, etc.).

⚠ **WARNING:** Maintenance operations must be performed exclusively by qualified operators. Live mains-voltage and/or high temperature parts are present: use the required personal protective equipment (PPE) and avoid touching with bare hands any metal parts other than the outer chassis.

The maintenance procedure must always end with a test shot of at least 5 seconds, carried out under normal operating conditions, with the fluid bag fitted and containing enough fluid to complete the test.

The results of the intervention, any anomalies found and any replaced part must be recorded in the maintenance log by the person responsible for maintenance.

The text that follows refers to the items shown in the previous figures, each of which is identified by a numeric reference.

2. PRELIMINARY OPERATIONS — opening the device

1. Verify that the device is not armed: the blue LEDs on the front of the fog generator must be off.
2. To open the unit: remove the 4 closing screws on the left and right sides of the plastic cover.
3. Carefully remove the plastic cover by pulling it towards you.
4. If the unit is not updated to the latest available firmware, perform the update before proceeding (see Section 8) and record the operation in the log.

At this point all the electronic (Ref. 1) and hydraulic components of the device are accessible.

3. FLUID BAG COMPARTMENT — VISUAL INSPECTION

✔ **Pump leaks:** There must be no traces of fluid leaking from the pump, the supply hose or the quick coupling of the fluid bag.

As a precaution, it is recommended to replace the supply unit (hoses + pump) after three years of operation, regardless of the number of discharges performed during that period.

✔ **Fluid hoses:** There must be no leaks anywhere along the hoses. The fluid visible inside the transparent hoses must fill at least 50–70% of the total volume.

A change in fluid colour towards pink/dark red is normal and does not affect functionality.

If the fluid bag has been installed for more than 3 years, replacement is recommended regardless of partial usage. The fluid bag with any residual fluid remains usable for tests and demonstrations.

The feed hose (Ref. 5, between bag and Fog Storm pump) must be filled to at least 2/3 of its length. If it is empty: lay the bag horizontally without removing it from the cardboard packaging and gently squeeze it until the desired fill level is reached.

4. POWER SUPPLY (REF. 2) — output voltage check

The units are equipped with a high-quality power supply, which also delivers the energy needed to keep charged the 12 V VRLA, 2 Ah battery. The charger circuit is located on the main board. The battery is housed in the lower compartment of the machine, close to the power supply.

Depending on the fog generator model, power supplies different from the one shown in figure *Ref.2* may be present. The procedure described below is independent of the power supply model actually used.

The output voltage is factory-set to 14.1 V. The power supply has a green status indicator located next to the adjustment trimmer.

✔ **Voltage measurement:** With a multimeter set for measurements in DCV, check that the voltage at the **V+** and **V-** terminals of the power supply is between 14.0 V and 14.2 V. Otherwise, adjust it using the dedicated trimmer (Ref. 6).

5. FOG STORM PUMP (REF. 3)

The FogStorm pump requires no maintenance: the fluid itself provides lubrication. Do not open the pump; there are no user-serviceable parts inside.

✔ **Functional test:** During the annual test shot (at least 5 s under normal operating conditions and with the fluid bag installed), check that the fog is generated for the expected time.

In case of partial emission, repeat the shot several times until the required result is achieved.

6. CHECK VALVE (REF. 4)

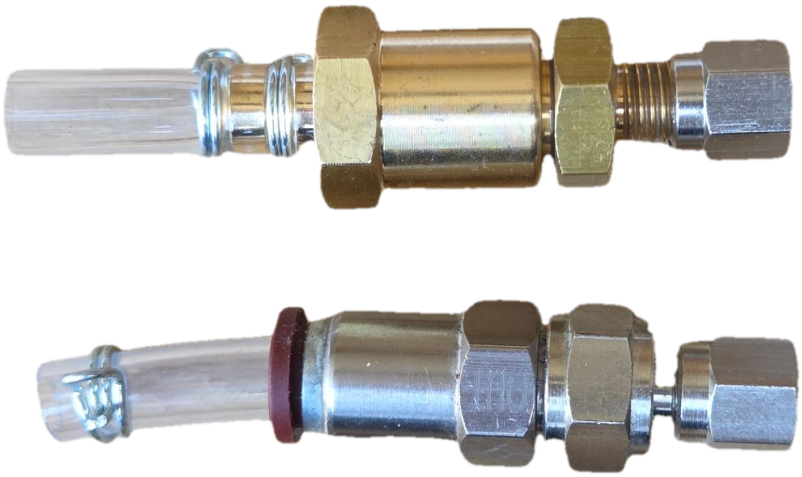
The check valve prevents the back-pressure that could damage the pump. It is factory-calibrated to open/close at the correct pressure and is part of the high-pressure assembly between the fluid pump and the inlet pipe of the heat exchanger.

✔ **Functional test:** During the annual test shot (at least 5 s under normal operating conditions and with the fluid bag installed), check that the nebulization is generated for the expected duration.

⚠ **WARNING:** If the unit does not correctly perform the activation/shoot sequence, or if the valve has already reached 50–60 shots, record the counter value and replace the valve.

✔ **Hardware update:** The check valve has been modified. Make sure the machine is equipped with the new brass valve in place of the previous steel component.

For reference, the figure below shows both the old and the new check valve.



Check valve
(current version above, obsolete version below)

If the machine is still equipped with the old valve, contact the distributor to receive the updated part free of charge.

⚠ **WARNING:** Replacing the old check valve increases the long-term reliability of the machine. If the old version is present, replace it and record the change in the maintenance log.

7. ACTIVE MAINTENANCE SOFTWARE — advanced diagnostics

For in-depth diagnostics, the Active Maintenance program, developed for Microsoft Windows, is available free of charge on the manufacturer's website. The program communicates with the fog generator via the serial port and displays in real time all the operating parameters.

It is also possible to:

- arm/disarm;
- trigger a full or short shot (test shot);
- set the shooting time;
- reset the fluid counter.

For communication with the fog generator, the software requires the 6-pin USB-to-serial adapter cable, available in the catalogue with code FPUCPAS.

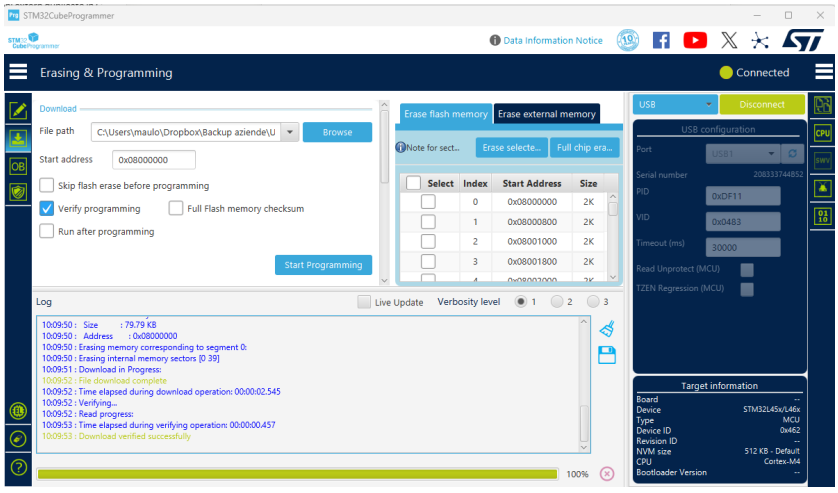
⚠ **WARNING:** Remember to restore the correct shooting time and close the unit at the end of each maintenance session.

8. FIRMWARE UPDATE

Perform the update before starting maintenance. The following items are required: a laptop computer with Windows 7 or higher, the STM32CubeProgrammer software by ST Microelectronics (only for machines in the *Modular Plus* line), the firmware file provided by the manufacturer, a micro USB cable.

Modular Plus machines

STEP	OPERATION
1	Install the STM32CubeProgrammer program on the laptop with administrator privileges.
2	Fully power down the device: disconnect both mains power and the backup battery.
3	Close jumper W9 (BOOT) on the main board (close to the RTC coin cell).
4	Power on the device by connecting only the backup battery. The board is no longer responsive due to the *bootloading* mode.
5	Start the STM32CubeProgrammer software and select *USB* as programming port (light blue drop-down list on the left of *Connect* button): USB
6	Connect the USB cable (micro USB) to connector J1 on the board, check the option *Read Unprotect (MCU)* Read Unprotect (MCU) and press *Connect* Connect
7	Select the tab *Erasing & Programming* by choosing the icon on the left panel and choose the *.bin* firmware file with the *Browse* button Browse
8	Make sure that the only active checkbox in *Download* section is *Verify programming*, leave the other fields unmodified and press *Start Programming* Start Programming
9	Accept both pop-ups, *File download complete* and *Download verified successfully,* and press *Disconnect* Disconnect (see picture below).
10	Remove jumper W9 from the main board, power-off the board and wait for some 60 s.
11	Reconnect mains power and backup battery. The signalling LEDs become active again: the firmware is updated.

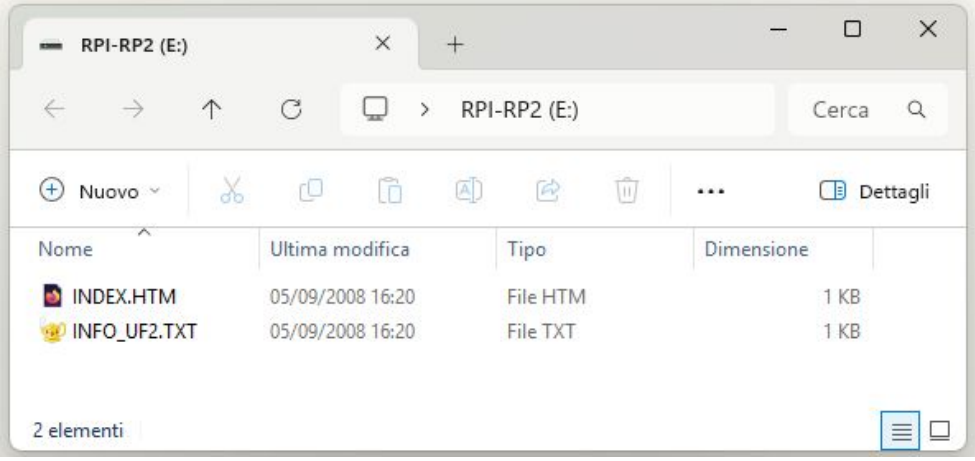


Firmware file name format (example): **Modular3Plus-256-1.5.0.bin**

- *Modular3Plus*: target model (must match the model to be updated);
- *256*: processor version; “256” for STM32L452VCT6 and “512” for STM32L452VET6;
- *1.5.0*: firmware version.

Modular machines equipped with Compact Rev. 2.x electronic board

STEP	OPERATION
1	Completely switch off the fog generator: disconnect both the mains power supply and the backup battery.
2	Close the W3 jumper on the main board (close to the microcontroller).
3	Power on the device by connecting only the backup battery. The board is no longer responsive due to the entry into *bootloading* mode.
4	Connect the USB cable (micro USB) to the J1 connector on the board: an *Explorer* window will open with a new disk drive (similar to the one below) corresponding to the Compact 2.x board.
5	Open **a new** *Explorer* window and select the firmware file, with extension "*.uf2*". Drag the file into the window corresponding to the Compact 2.x board (answer "Yes" to any pop-up titled "Copy the file without its properties?").
6	After less than a minute the destination *Explorer* window will close (in some cases it may reopen again, in which case the new window can be ignored).
7	Remove the W3 jumper from the main board, disconnect the USB cable, switch off the board and wait approximately 60 s.
8	Reconnect the mains power supply and the backup battery. The signalling LEDs become active again: the firmware is updated.



Firmware file name format (example): **Compact2_MODULAR-500.uf2**

- *Compact2*: firmware for Compact Rev. 2.x board;
- *Modular-500*: target model (must match the model to be updated).

⚠ **WARNING:** Each firmware is model-specific. Do not install on a unit any firmware whose name does not exactly match the model to be updated.

9. ANNUAL MAINTENANCE CHECKLIST

Complete one form for each procedure. Keep it in the unit's maintenance log.

Model / Serial No.	Location / Customer	Maintenance date	Operator

#	Operation	Result	Notes / Anomalies / Replaced parts
1	Fluid bag compartment inspection — no traces of fluid leakage	☐	
2	Fluid level check in pipes (≥ 50–70% of volume)	☐	
3	Check absence of leaks from piping	☐	
4	Check valve verification (shot counter < 50–60)	☐	
5	Power supply voltage check (14.0 V – 14.2 DC)	☐	
6	Firmware update (if a newer version is available)	☐	
7	Device arming (blue LED on)	☐	
8	Test shot (≥ 5 s, fog generated for the expected duration)	☐	
9	Restore correct shooting time	☐	
10	Close unit and rearm (if necessary)	☐	

Date: _____

Operator's signature: _____

10. NOTES

Below is some useful information for the maintenance technician:

- **PPE**: during the maintenance operations described in this document, the operator may come into contact with live mains-voltage and/or high-temperature parts (up to 250 °C). Make sure you understand the risks and use suitable personal protective equipment.
- **Battery*:*** the average service life of a good-quality VRLA battery installed inside the fog generator is approximately 2 years. After this period, replacement is recommended regardless of its actual state of health.
- **Spare parts**: to order spare parts, please contact your distributor. If this is not possible, contact the manufacturer directly.