automist®

PERSONAL PROTECTION SYSTEM

automist

Automist® Personal Protection System Handbook

Version 1.0.1

The Personal Protection System Handbook is designed to provide Accredited Automist Installers with essential information regarding specification, installation, maintenance and commissioning of the Automist fire protection device.

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Introduction

- Read all of these instructions.
- Retain this guide for later use.
- Follow all warnings, cautions and instructions contained in this guide.
- Automist Personal Protection System (PPS) requires recommissioning at least every six months to provide effective protection and to mitigate the risk of legionella.
- When this product has reached the end of its serviceable life, it should be disposed of in a safe manner. Batteries are 100% recyclable and should be returned to Plumis for recycling or disposed of according to the country law.
- The content in this manual may differ from the product and is subject to change without prior notice.

IMPORTANT: Once installed, complete and submit an installation and commissioning form to Plumis.

WARNING: To avoid hazards, all installation procedures and maintenance must be supervised by an Accredited Automist PPS Installer.

Installation requirements

- Before installing ensure that the following have been provided at the installation site:
- Sufficient space to install the system in accordance with these installation instructions. The unit is 33.86 inches (860 mm) (height) by 46.85 inches (1190 mm) (length) by 5.91 inches (150 mm) (width).
- The tank requires 67 litres of water. The installer should ensure it is possible to fill the tank either close to, or within its installation location.
- A 230V 'C' rated 8A electrical supply for trickle charging – mains socket or unswitched fused spur (preferred).
- A standard sized mini SIM card (not micro or nano SIM) loaded with a sufficient amount of credit.
- Effervescent chlorine tablets for purifying water, and dual formula tank cleaner and steriliser for cleaning the tank.
- Operating ambient temperature: above 4°C.
- Handling Safety:
  Be careful. Do not lift heavy loads without assistance.
  - <18 kg (<40 lb.) – 1 person
  - 18-32 kg (40-70 lb.) – 2 people
  - 32-55 kg (70-120 lb.) - 3 people
  - >55 kg (>120 lb.) – forklift

  A single battery weighs 22 kg (48.5 lb).
  The Automist PPS unit weighs 16.5 kg (35.3 lb) without the battery loaded inside.
  The full Automist PPS tank weighs 68kg (149.9 lb).
  IMPORTANT! The PPS enclosure should not be transported with the battery loaded inside.

Automist PPS Placement

The Automist PPS must be lent against a wall when installed. The system must be affixed to the wall with the supplied bracket or behind a radiator cover. The bracket can be fastened to the wall using removable adhesive strips if it is not possible to use screws or nails.

IMPORTANT: The Automist PPS must not be located where the spray pattern will be obstructed. A 30 inch (750mm) clearance perimeter must be provided around the spray head.

Room Compatibility

A single Automist PPS has a range of 4m from the spray head location. The spray head should therefore be in approximate line of sight of the highlighted fire hazard.

A typical application would be to protect a vulnerable person who spends the majority of their time in either a bed or chair and because of mental and/or physical health issues are more prone to starting fires accidently and/or unable to escape in the event of one. The fire hazard can therefore be considered to be localised to a specific area within the home.

Automist PPS is designed to detect and suppress the fire before significant heat and smoke has developed and can cause serious injury. It is recommended that it is deployed as part of a package of measures designed to reduce the fire risk to a vulnerable person.

Care must be taken to ensure that the risk profile is appropriate. The risk assessment needs to indicate the principal fire hazard is within the discharge area, of one or more PPS. If the fire hazard is not localised then a fixed Automist system that covers the whole of the dwelling or risk area should be specified.

Detection System

Automist PPS's reliability is dependent on the detection system. The system is designed to be triggered by a correctly installed and positioned smoke alarm or a flame detector. Smoke alarms can be subject to false alarms and so a double knock strategy is recommended.

In its default setting, Automist PPS is programmed to run continuously for 10 minutes on activation. This is designed to prevent interruption of mist even if an alarm or detector is damaged by extended exposure to fire.

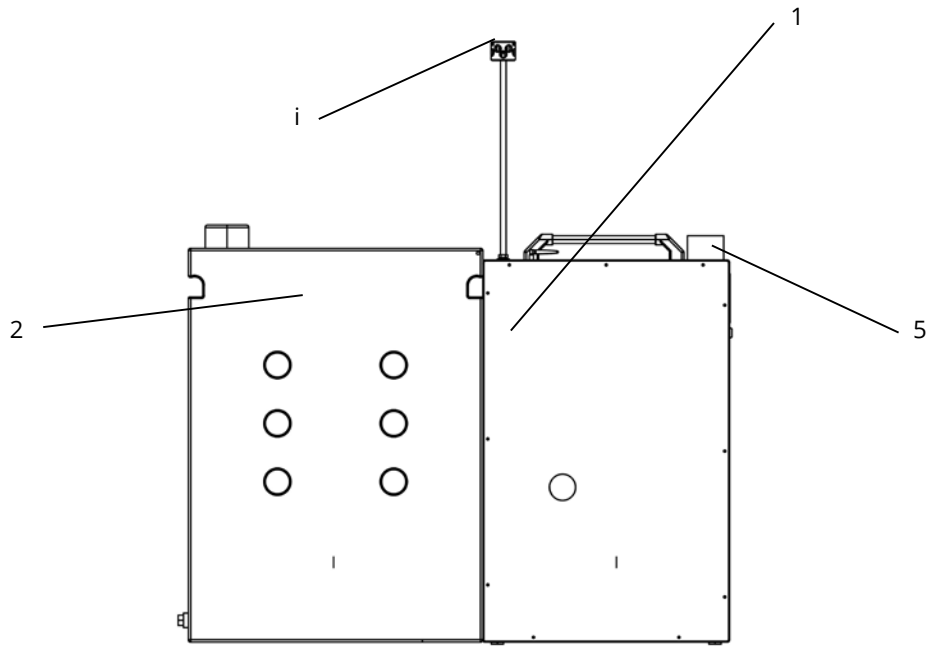
Automist PPS's use of detection does not affect or reduce any requirements for the use of smoke detection in the property. Smoke detection provides a critical independent early warning, especially with slow-growing fires.

For guidance of smoke alarm or flame detection use please refer to the manufacturer's instructions.

IMPORTANT: Ensure Automist PPS is only connected to the alarm in the volume it protects. You can check these interconnections using the product's ALARM TEST MODE. In this mode, the alarm lamp will light to indicate a functioning alarm input. Ensure that Automist PPS has been successfully returned to the System OK state following this test, and that the water supply remains open, and that nozzles are unobstructed.

The Automist Personal Protection System Kit

1. PPS pump unit w/ stainless steel spray head rod
2. PPS Tank
3. PPS Extras Kit
    i. Spray Head
    ii. 5 nozzles (A16 x 1, A4x4) and o-rings
    iii. Water connectors
    iv. Commissioning label
    v. User Instructions
    vi. Battery Terminal Bolts
    vii. Enclosure Screw
4. Bracket
5. PPS Relay Base (dependant on detection)
6. Detection (not included)
7. Sterilisation kit (not included)
8. Commissioning kit (supplied for installers only)



Installation Procedure

A) Preparing the equipment
B) Installing the tank and pump
C) Configuring the spray head
D) Connecting the electrics
E) Commissioning

Notice! Equipment you will need:

- Mulgrips or a pipe wrench
- A standard wrench
- A suitable electric drill and screws, or removable adhesive picture hanging strips for fixing the unit to the wall with the bracket
- A set of screwdrivers
- A hose and tap connector (to fill tank)
- A standard size sim card with sufficient credit
- Effervescent chlorine tablets for purifying water, and dual formula tank cleaner and steriliser

A) Preparing the equipment

Connect the female quick connect valve to the supplied hose. Attach this assembly to the brass hose tail outlet on the tank. Tighten in place using the hose clip to form a water tight seal. Ensure the hose covers the whole length of the hose tail and the hose clip is fastened in the centre of its length.

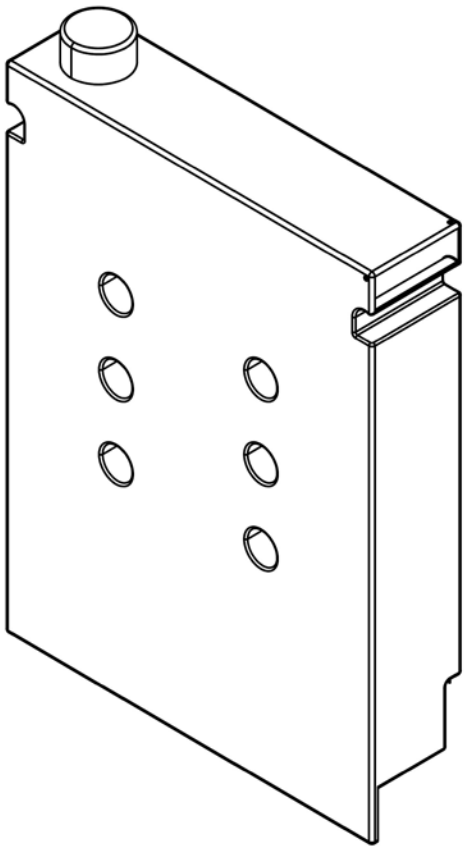
Inspect the inside of the tank to ensure it is empty. Any deposits left inside can support bacterial growth and provide a source of nutrients for organisms that increase the risk of legionella.

Clean the tank with a dual formula tank cleaner and steriliser. Follow the instructions provided by the manufacturer. Wash out any cleaning containments with clean water once this process had been completed. This is a good time to ensure the seal for the quick connect valve is secure and the tank does not leak.

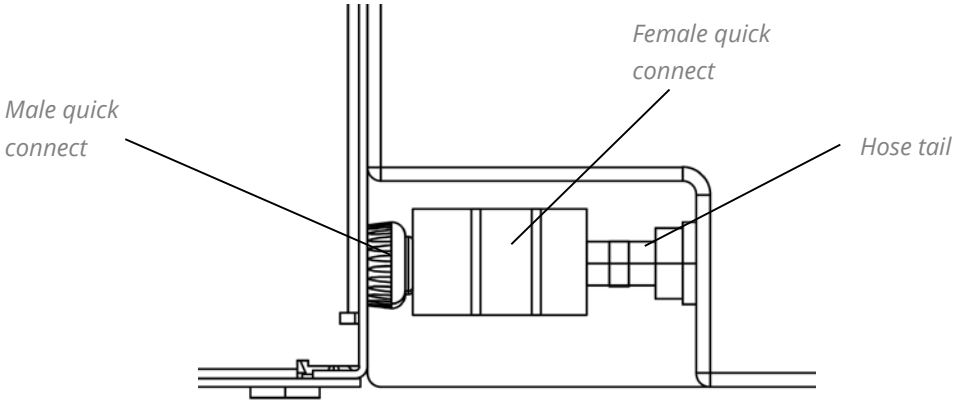
Screw the male quick connection fitting on the outlet of the pump. Ensure the supplied washer is compressed between the two components.

B) Installing the tank and pump

Site the PPS tank and pump in its desired location. It is preferable to fill the tank in the site location. Care should be taken when transporting the water tank when full of water (refer to the installation requirements for heavy lifting). Gently tilt the water tank to gain access to the valve.



Ensure there is adequate clearance along the wall for the power cable to the pump unit to be managed. Attach the tank to the wall using the bracket supplied. Once secured in place ensure the quick connect female valve is open and push the pump and tank together. The connection will click when locked together correctly.



Fill up the tank until 5mm off the top surface with mains water using a clean garden hose and tap. Check the water path whilst doing so to ensure there are no leaks.

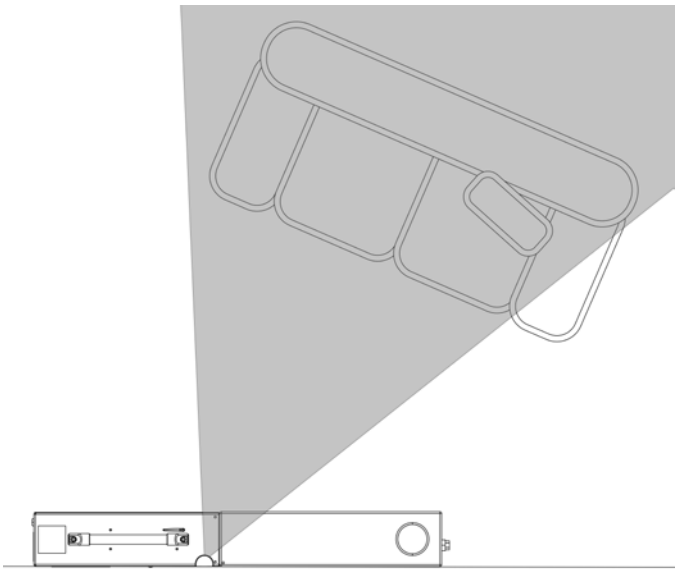
Important! Inspect the connection between the pump unit and the tank to ensure there are no leaks.

C) Configuring the spray head

Plumber's tape should be wrapped approximately three times around one end of the stainless steel rod to ensure a tight seal and to prevent leaks. Attach this end of the stainless steel rod into the spray head using the pipe wrench to grip the rod.

Only the Plumis technical team, a Fire Engineer or an Accredited Installer/Reseller should specify the location and configurations of the PPS spray head.

Care must be taken to ensure the largest nozzle (A16) is directed in the location of the fire hazard. Tighten the four remaining nozzles (4 x A4) in the remaining ports. Use the nozzle adjustment tool provided to gently but firmly tighten each nozzle. Nozzle o-rings are provided to form a good seal at the interface. Silicone grease should be used for lubricating and preserving o-rings.



Attach the rod to the pump using the pipe wrench on the rod and the wrench on the female ¼" BSP connector. Ensure the orientation of the spray head is correct.

D) Electrical Connection and SIM Card

IMPORTANT! Connecting the power to the electrics requires a suitably qualified & competent person. Switch off electricity at the mains before working on existing circuits.

Automist requires a 230V a.c. / 50Hz electrical supply. Power to Automist should be connected to an unswitched fused connection unit (FCU) (preferred) or a main socket. It is recommended to site the location of the supply behind the radiator cover where it is less likely to be tampered with.

The Automist unit presents a part-inductive load and is therefore not suitable for type “A” or “B” miniature circuit breakers. Type “C” & “D” may be suitable. Because Automist is often used for life safety applications, installers should add a suitable safety margin to the MCB ratings. The circuit supplying a single Automist unit would commonly be protected by a type ‘C10’ MCB.

IMPORTANT! Make sure your PPS is off and disconnected from the mains when working with the battery terminals. It is recommended that full precautions be taken at all times when working on batteries. Do not allow metal objects to rest on the battery or fall across the terminals (even when disconnected, a battery remains charged!).

Remove the front panel of the pump unit.

Before connecting the battery, slide your activated SIM card into the GSM module at the top of the PPS case. Ensure the SIM is loaded with credit.

Place the battery upright in the PPS pump enclosure. Attach and tighten the positive battery cable (Red). Attach and tighten the negative battery cable (Black). Try to prevent touching any other metal work on the PPS with the negative connector. You may notice a small spark when reconnecting the negative terminal. Check and make sure that the terminals of your PPS are protected with insulating caps. This is to prevent accidental contacts of the terminals (especially the positive terminal) with other metal parts.

When Automist is powered up for the first time the yellow FAULT LED and beeping will indicate that the system has not been commissioned. This can be muted temporarily by turning the key once.

E) Autodialler Setup

The Autodialler serves to dial and send text messages to up to three phone numbers when there is an activation. It also sends text messages when power is lost or restored for more than 15 minutes or when the fire alarm ends.

The following messages are sent:

AUTOMIST NO FIRE DETECTED *** POWER LOSS
AUTOMIST NO FIRE DETECTED *** POWER ON
AUTOMIST FIRE ALARM *** POWER ON
AUTOMIST FIRE ALARM *** POWER LOSS

The Autodialler send messages using an ordinary SIM card. You will need to know the phone number of the SIM card. **Keep this number secret, as anyone with the number can change the setup of the Autodialler.**

When the Autodialler first receives power, it will display red and blue LEDs. The blue LED will then extinguish until a valid network is found. The blue LED will then light and the red will turn off.

Wait until you receive a steady blue light, indicating that you have a mobile signal.

You will now need to send a text message from your phone to the PPS's secret mobile number. Please send one message at a time and wait for the Autodialler to respond before you try to send another message.

You can tell the Autodialler to report the mobile signal strength by sending **#SS** as a text message from your own phone. Wait for the response (it will take a minute or two).

You will receive a text telling you a signal strength score we strongly recommend that you place the unit where you can receive a signal strength score of at least AVERAGE. If the score is POOR the unit will be unreliable and is not suitable. You can purchase a 3 metre antenna booster from the website www.gsm-activate.co.uk.

To program the contacts, you must send a text message containing the phone number you would like it to contact in emergencies, in the form:

(hash) (1 or 2 or 3) (star) (phone number) (star).

For example, to program the first contact as 07981234567, you could send **#1*07981234567***.

To cancel a number, simply set the number to blank, for example send **#1**** .

If you are unable to send text messages from your phone, it is also possible to save the three contacts directly to the Autodialler's SIM card by inserting the SIM card it into a mobile phone that accepts a mini-SIM.[1]

Replace the front panel on the pump unit using the screws provided.

IMPORTANT! It may take a time to send or receive a text acknowledgement this depends upon how busy your telephone network is at the time. The unit has a "sim active" function which monitors the activity on the SIM card and if it has been inactive for 6 weeks it sends a text to pre-recorded number, this will then eliminate the problem of sim's getting shut down if they are unused for 3 months. New SIM cards will need registering before they can be used. Full details of how this is done can normally be found in the SIM card pack. It will normally require that the SIM card is inserted into a mobile phone, a number dialled and instructions followed. Details of how to do this can be found on the SIM card provider's web site or by calling their customer services. Please use one of the following SIM card providers (Vodafone, TMobile, O2 or Orange). We do not recommend using 3 at this present time.

F) Commissioning, Sterilisation and maintenance

Commissioning is a simple programmed procedure which allows Automist to be tested. During commissioning, the pump runs for approximately 20 seconds and the output pressure is monitored. A rubber commissioning sock is provided to prevent watermist from flooding the protected volume.

Sterilisation is required as part of the commissioning procedure to:

- To kill any bacteria present in the tank water
- To circulate the sterilising agent throughout the system while the agent remains active

[1] If the first contact is Jane, enter the first contact name as **#1=Jane** and enter Jane's contact number. Make sure you save the contact to the SIM card rather than the phone. Repeat for #2 and #3. Removing and inserting the SIM should be done with the PPS power off and the battery disconnected.

- To avoid introducing any new bacteria.

Aqua Midi Tabs are chlorine based tablets are made to kill bacteria, spore, cysts, algae, fungi, protozoa etc. They are especially good for salmonella typhi, vibria cholerae, shigella sonnei, streptocoecus faecallis, estcherichia coli and legionella. You can also find more information on the clean tabs website: www.cleantabs.com

IMPORTANT! Commissioning is required:

Once all the components of the system have been installed and the system is powered.

- As part of the maintenance cycle twice a year
- If construction work takes places, new alarms are installed or maintenance work occurs which could affect the system.
- Commissioning must be performed by an Accredited Automist PPS Installer.

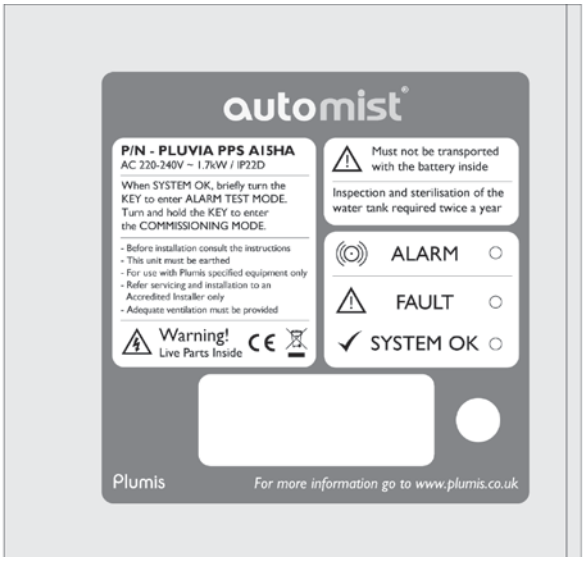
IMPORTANT! Automist should never be left in a fault condition. Error LEDs indicate that the system requires attention and may not operate in the event of an alarm.

IMPORTANT! The water should be replaced and the tank should be cleaned annually.

Use Puriclean to keep the tank clean and sterilised. The active ingredient is Chlorine which is effective in killing bacteria, viruses, cysts, biofilm build up, algae and fungi including legionella. Puriclean is a powder. Mix the correct amount with a small amount of tepid water, put in the tank, fill the tank full and leave to soak, preferably for 12 hours. Empty the tank and flush through with fresh water. Puriclean should be used when the tank is in need of cleaning, which is dependent on how the tank is stored and the cleanliness of the water source you are using.

All of the recommended products use themselves up in the process, so there are no harmful chemicals left after use.

The Automist PPS Controls



KEY SWITCH: Turning the key switch during a fire condition will stop the Automist Smartscan pump for 2 minutes. If at the end of 2 minutes, an alarm input remains active, Automist Smartscan will recommence mist operation. If the alarm condition has ended, Automist Smartscan will return to stand-by.

In error conditions, turning the key switch temporarily hushes the error sounds.

In the SYSTEM OK stand-by, turning the key switch may be used to enter ALARM TEST MODE. In this mode you have a short time to test alarms in the home without activating Automist Smartscan.

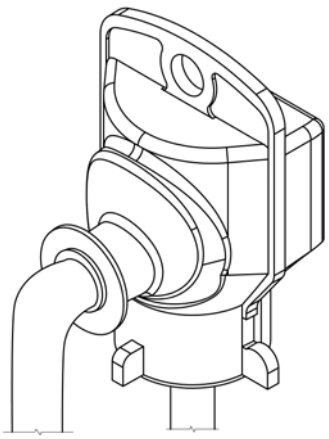
ALARM LED: Lit red to indicate an ALARM condition.

FAULT LED: Lit yellow to indicate a fault. Please refer to the troubleshooting guide. N.B. When Automist Smartscan is powered up for the first time the yellow FAULT LED will be lit to indicate the system has not been commissioned

SYSTEM OK LED: Lit green when the system is OK and on stand-by.

Commissioning Procedure

1. **IMPORTANT!** Ensure the commissioning kit has been sterilised and adequately cleaned. The water in the tank should be replaced annually and the tank cleaned.
2. Place the sterilisation tablet in the water (following the guidelines of the manufacturer) and sterilise the water. It typically takes 15 minutes for a sterilisation tablet to fully dissolve.
3. Put the rubber bung on the stainless steel rod and slide up to the spray head. Pull the commissioning sock over the rubber bung and secure in place using a cable tie. Use the push fit adapter for easy hose attachment and place the connected hose into the tank so the water can recirculate. Direct the hose so that it is stable and aimed along one edge of the tank (either across or downwards) so that water circulation around the entire tank will be promoted.

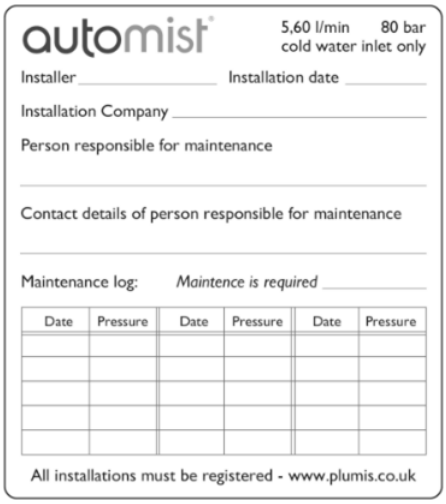


4. Turn and hold the key switch for more than 5 seconds. A long beep followed by four short beeps indicate that you may release the key. This COMMISSIONING MODE is indicated by four short beeps every 5 seconds accompanied by four short flashes of the ALARM LED. If an alarm input is not received within 1 minute, Automist will revert to stand-by.
5. **IMPORTANT!** In COMMISSIONING MODE the system will trigger the Automist pump for a short time once the alarm input has been received. Please ensure you have the commissioning sock secured.
6. Test the heat alarm / fire panel output as recommended in its user manual (e.g. press the test button). N.B. A long press of the test button of up to 30 seconds may be required.

7. Check the gauge and ensure that the output pressure reaches a stable 75 to 100 bar. You may have to run the pump continuously for 30 seconds prior to commissioning to remove trapped air in the line. If the pressure does not reach the required range, please refer to the commissioning troubleshooting guide.
8. If you have not already done so prior to commissioning, trigger the alarm so that the PPS pump runs for at least 15 seconds. Cancel the activation with the key. This will trigger the Autodialler and the designated numbers should receive text messages to indicate activation. If you do not receive these within 2-3 minutes, please refer to the Autodialler setup section above.
9. Check that there has been no leakage from between the tank and the pump unit and that the tank remains full.
10. Once you have successfully commissioned your unit, complete the online installation and maintenance form and attach a layout picture. Jot down the mobile numbers of the responsible persons programmed on the sim.
11. Place the two warning stickers and the commissioning label:
    - Label the separate circuit on the circuit breaker

    - Label the alarms that triggers Automist PPS, preferably near the test button

    - Complete the installer commissioning label and affix to your Automist PPS unit.



IMPORTANT! Record the output pressure from the commissioning gauge on the commissioning form.

12. Carefully remove the commissioning sock.
13. Replace the cap on the tank.

14. Screw the front plate on the pump unit enclosure.
15. Check to see you have received all the appropriate text messages.

Post-installation checklist – Key points

- All Automist PPS units should have been successfully commissioned using live detection and the outlet pressure and text messaging verified.
- All Automist PPS units should show "System OK".
- Any potential house coding problems or fire panel cause-and-effect issues should be checked by entering ALARM TEST MODE on all pumps and sounding both related and unrelated detectors.
- The water tank must be connected and the valve left open. Visually inspect the connection between the pump unit and the tank for leaks
- The battery should be correctly installed. Visually inspect the batteries for cracks, corrosion signs or any signs of leakage.
- The numbers of the responsible person should be recorded.
- The installed unit should be attached to the wall with the bracket or hidden behind a radiator cover.
- Leave one key in the unit, if appropriate (dependant on risk profile), and give the spare to the 'responsible person'.
- The tank should be free from debris and filled with clean water.
- Explain the basic functionality of the unit to the designated 'responsible person'.

Cleaning

The Automist Personal Protection System should be wiped clean with a damp cloth. Do not attempt to clean with any other chemical cleaners or abrasives. The tank must be cleaned annually and the water should be replaced and sterilised every six months.

Repair

CAUTION! Do not attempt to repair the Automist PPS. Doing so will invalidate your warranty.

Automist PPS should be serviced or replaced if it has been if any part of the system, including any detection, have been exposed to fire conditions.

Troubleshooting

Problem	**Probable Cause**	**Recommended Action**
Pressure does not consistently reach correct range (too low) during	1. Leakage between pump unit and tank	1. Check for leakage on the water path, for example the quick-fit connector may not be secured or its o-ring may not have been fitted.

commissioning procedure		2. Re-run commissioning.
	2. Blockage at the pump unit inlet	1. Close off the water with the isolation valve. 2. Disconnect the hose at the pump inlet and check for blockages within the inlet water path.
	4. Pump not providing enough flow	1. Re-run the commissioning procedure with the hose outlet placed inside a container with volume markings. 2. If volume of water is less than 1.6 litres, there may be an inadequate water supply or a damaged pump. Please contact Plumis technical support.
Pump persistently produces a warbling sound and shows FAULT lamp	Pump not yet commissioned Incorrect wiring to pump or spray head Pump or spray head damaged in transit	The number of beeps (or trills) that the pump sounds when in fault mode is intended as a diagnostic. Please count the beeps: • two beeps is the normal state of the decommissioned pump • three beeps – wiring fault: check that you have correctly wired exactly one pump to exactly one relay. If an external STOP button is in use, check that this provides a normally closed connection. • four beeps indicates that the STOP button or key switch is stuck. This fault is very rare and will likely require a replacement pump.
Power circuit trips out as soon as pump starts	Too-small MCB used for Automist Smartscan circuit	1. Please refer to section on electrical connection above.
No mist is produced, although pump runs during commissioning test	1. Loose high pressure water path, leakage on the high pressure side. 2. Water supply is interrupted	1. Check for gross leakage on the high pressure water path. 2. Re-run commissioning. 3. Verify that the isolation valve is open and that there is a water supply to Automist PPS.

	3. Severe blockage at the pump connection	1. Disconnect the inlet hose and check for blockages on the tank quick connector.
	4. Pump damaged in transit	1. Re-run the commissioning procedure with the hose outlet placed inside a container with volume markings. If volume of water is less than 1.6 litres, the pump is not providing the correct flow. Please contact Plumis technical support.
Either the pressure is above the correct range, or the pump pulses or temporarily cuts out during the commissioning test	1. High pressure blockage	1. Check that rear of nozzles have not been blocked by PTFE tape and that nozzle numbering adds to 32. 2. Please contact Plumis technical support.

Warranty

Plumis Ltd warrants its products to be free from defects in materials and workmanship under normal residential use for a period of two years from the date of original purchase. This warranty is limited to repair or replacement of units returned to Plumis Ltd according to our return procedure. The warranty on any replacement units, will last for the remainder of the period of the original warranty. Plumis Ltd reserves the right to offer an alternative product similar to that being replaced if the original model is no longer available or in stock.

If the product is found to have failed for reasons outside our warranty cover Plumis may quote to repair the unit and return it. Where products are replaced or repaired under warranty, they will be returned to a UK address free of charge.

This warranty does not cover the removal or reinstallation of products, or faults in installation.

Plumis Ltd shall not be liable for any incidental or consequential damages caused by the breach of any expressed or implied warranty. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose is limited in duration for two years. This warranty does not affect your statutory rights.

Notes