

automist®

plumis

## Automist® Tap Head Handbook

Version 1.0.0

The Automist Tap Head 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 requires recommissioning at least annually to provide effective protection.
- When this product has reached the end of its serviceable life, it should be disposed of in a safe manner.
- 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 Installer.

## This Document

Automist Tap Wall Head is a fire suppression appliance designed for residential use.

**IMPORTANT: It's primarily used as an elective fire safety upgrade. In contrast to Automist Smartsan and the Fixed Wall Head, it is not LABC registered, and is not typically used for building regulation compliance unless supported with a fire engineering justification.**

Fire safety engineering is a recognised method of achieving adequate fire safety in a building. It is sometimes the only viable method of achieving a satisfactory standard of fire safety in open or complex homes. BS9991 and PD7479 illustrate how Fire Engineering skills to be applied to residential fire safety strategy, inherently embracing the use of Innovations in fire safety through rigorous analysis of limitations and solutions.

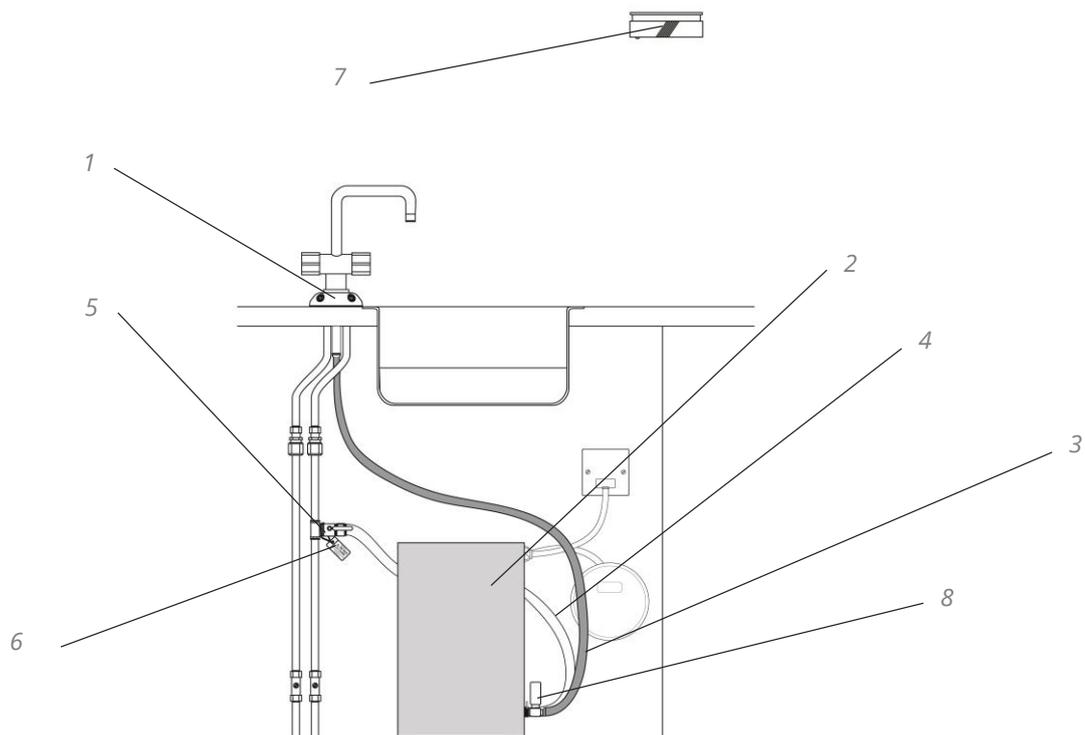
The objective of this guide is to provide information on the performance, specification and installation of Automist Tap Head. With this guide as a route map, specifiers and approvers can feel confident in specifying Automist Tap Head.

## Introduction to Automist Tap Head

Intended as an easy to retrofit and affordable alternative to sprinklers, Automist uses a high pressure pump to generate a fine water mist from nozzles mounted under a standard tap or on a work surface. In a series of tests by BRE, Automist was found to render lethal environments survivable.

## The Automist System

1. Assembled Automist tap mounted head
2. Automist Pump Unit
3. High pressure hose
4.  $\frac{3}{4}$ " stainless steel braided connection
5.  $\frac{3}{4}$ " single check valve
6. Automist supply label & cable tie
7. Heat alarm and relay base (not included)
8. Commissioning gauge (where applicable)
9. Sticker set (not shown)



## Automist operation

In the event of a fire, the system is triggered automatically by a heat alarm or a fire panel output. Heat detection is recommended for kitchens in Approved Document B, and effectively eliminates nuisance activation. Unlike conventional sprinklers, Automist can be stopped manually by pressing a button on the pump's front panel, by means of an optional remote STOP button, or by cutting power to the independent circuit on the consumer unit (marked with an indicator sticker). As Automist uses much less water than a traditional sprinkler system, water damage in the event of activation is minimised. Where desired, manual activation can also be provided through a manual call point.

Once triggered, a pump drives mains water through the unique nozzle unit, quickly filling the room volume with a dense fog. Water mist removes heat and displaces oxygen from the fire zone, resulting in fire control, suppression or extinguishment. The intention is to lower the temperature and the accumulation of toxic gases, thereby reducing damage and increasing survivability. Adding water to a chip pan fire can greatly exacerbate the fire; the same is not true for water mist as the updraught from the flame and the evaporation of the tiny droplets prevents water from reaching and collecting in the pan.

The water mist technology also has benefits for suppressing a greater range of fire scenarios, particularly fires that are shielded from the nozzle release point.

## Fire suppression within a holistic approach

A fire suppression device like Automist aims to control and suppress fires, significantly reducing the risk of injury, life loss and property damage by maintaining tenable conditions for as long as possible while occupants evacuate. This is achieved in several ways:

- Reduction of room temperature in the region of the fire. Water mist devices achieve this by consuming much of the fire's energy in converting water to steam.
- Reduction of smoke and toxic gases. Water mist devices achieve this by the production of copious amounts of steam in the immediate vicinity of the fire, locally excluding oxygen, reducing temperatures and thus inhibiting the combustion reactions of the fire.
- Fire growth is restricted. This is achieved through the reduction in temperatures and slowing of combustion reactions.
- Flashover prevention. By constraining room temperatures to around 100°C or less, the rapid ignition of all combustible items in the rooms is prevented.
- Providing cooling to structural elements in the fire compartment allows them to perform their function for longer.

## Automist Fire Testing

Automist was independently tested at the Building Research Establishment (BRE). The test was based on BS EN 1869:1997, DD 8458 1:2010, and the criteria of Scandinavian SRSA/DSB "Easily installed automatic extinguishing systems". Critically, Fractional Effective Dosage (FED) measurements and "free burn" control tests were included to allow a complete and objective assessment. These tests were run in BRE Global's Watford (UK) Burn Hall and mimicked both furniture and kitchen fires.

### What is Fractional Effective Dosage?

Fractional Effective Dosage (FED) is a calculation method used to predict impacts on fire victims as a result of the "doses" of toxic gases concentration and the temperature exposure during a fire. This is detailed by

the method of Prof D.A. Purser and is used to British and European Standards (BS7899-2: 1999: Code of practice for assessment of hazard to life and health from fire. Guidance on methods for the quantification of hazards to life and health and estimation of time to incapacitation and death in fires and ISO TS 13571: Life-threatening components of fire – Guidelines for the estimation of time available for escape using fire data, respectively).

FED has a toxic gas component (FED-Asphyxia) and a temperature component (FED-Heat).

FED Asphyxia: Exposure to a sufficient inhaled dose of asphyxiant gases results in cerebral hypoxia (insufficient oxygen available to brain tissue), which leads to collapse with loss of consciousness followed by death if the exposure is prolonged. The inhaled dose of asphyxiant gases increases with fire duration and with the increased concentration of toxic gases with fire growth. Consequently, the main objective from a fire protection perspective is to minimize fire spread (reducing the concentration rate of increase) sufficiently to avoid loss of consciousness but most importantly death before rescue arrives. In the BRE tests, the toxic gases considered were carbon monoxide and carbon dioxide, as well as low-oxygen hypoxia. The dosage of toxic gases is also dependent on rate of air intake. For these tests, it has been assumed that an occupant was stationary but agitated while in the compartment during a fire, resulting in ventilation (VE) of 15 litres per minute. Using this method, loss of consciousness is expected when the FED of asphyxiant gases (FEDAG) reaches 1 while death is expected at an FEDAG of approximately 2-3.

FED Heat: The main hazards from a brief exposure to heat during a fire are skin pain and burns, followed by death in severe situations. This depends mainly on the duration of exposure and the temperature increase during a fire so suppression will not only reduce the temperature but also avoid it from increasing. When FED Heat reaches 1 it is assumed that an occupant will be incapacitated due to pain. Third degree burns are predicted at an FED of approximately 3. Additionally, for air saturated with water vapour (as in a water mist fought fire), the maximum temperature at which air can be breathed is 60°C.

The test setups run at the BRE consisted of a simulated furniture fire and a kitchen fire. All fires were run in either a 4 m x 4 m x 2.5 m room or a larger 8 m x 4 m x 2.5 m room with doors open or closed. The door openings were 1m wide and 2.1 m high. The tests by BRE measured the gas concentrations to determine FED Asphyxia at a position 3 m away from the fire and at heights of 0.6 m and of 1.8 m. Temperatures were measured at a position 2 m away from the fire and at heights of 0.6 m and of 1.8 m.

### **Furniture Test Setup**

The furniture fire used the same configuration of fuel load and room layout as in the proposed watermist draft standard (DD 8458-1), the traditional sprinkler standards (EN 12845 2004 and BS 9251:2005) and the Scandinavian SRSA/DSB standard. This is the industry's well established fire test setup originated by the International Maritime Organisation (IMO).

The setup consists of two polyurethane foam sheets and a wood crib placed above a fuel tray containing water and heptane and positioned in the corner of the test room. Four marine grade untreated plywood panels, each measuring 1.2 m x 2.4 m in size and 12 mm thick forms the walls in the corner of the test room. The foam sheets consist of two 100 mm thick pieces of polyurethane foam with a density of approximately 18 kg/m<sup>3</sup>. The sheets are 810 mm wide, 760 mm high and were glued onto a 4 mm thick board of untreated plywood using contact adhesive. The distance from the edge of the board to the foam is 30 mm at the bottom edge and 15 mm along the edge of each side. The sheets of plywood were 840 mm wide and 790 mm high and are securely bolted to a supporting structure which holds them in an upright position.

## Kitchen Test Setup

The simulated kitchen fire setup represents a simple kitchen arrangement made of 'standard' materials commonly found in domestic kitchens. The cupboards consist of laminated chipboard panels and the worktop is made of solid wood. The empty kitchen units are 1800 mm wide and divided into three sections of 600 mm each. The upper cupboards were 700 mm high and 300 mm deep. The lower cupboards are 700 mm high and 600 mm deep. No shelves are installed in any of the cupboards. The worktop is 880 mm above the floor. The distance between the worktop and the underside of the upper cupboards is 580 mm. The kitchen fitted is typical of standard styles available at leading furniture outlets.

Below a summary of the results:

Test Description		Test criteria reached (time in minutes, seconds)			
		FED = 1 @ 1.8 m	FED = 2 @ 1.8 m	FED = 1 @ 0.6 m	FED = 2 @ 0.6 m
8m x 4m room with open doors	Automist @ 5m*	Not reached	Not reached	Not reached	Not reached
	Automist @ 8 m	3 m 3 s (heat)	3 m 13 s (heat)	Not reached	Not reached
	Free Burn	2 m 19 s (heat)	2 m 27 s (heat)	Not reached	Not reached
8m x 4m room with closed doors	Automist @ 8 m	23 m (heat)	Not reached	Not reached	Not reached
	Free Burn	3 m 40 s (heat)	12 m 53 s (heat)	7 m 30 s (heat)	21 m 3 s (heat)
4m x 4m room with closed doors	Automist @ 3 m	25 m (asphyxia)	Not reached	28 m 17 s (asphyxia)	Not reached

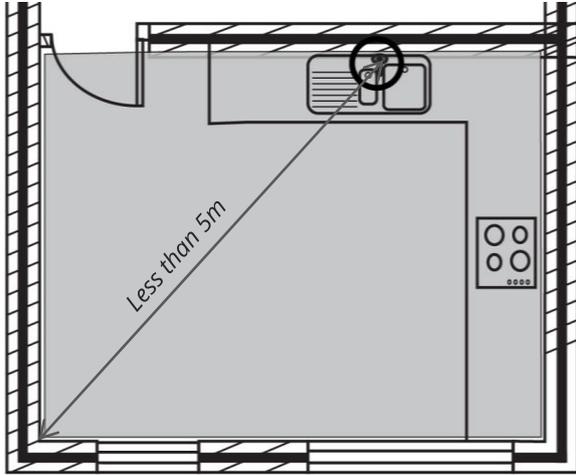
*\*Test was not run until completion, based on partial results*

In a closed room, Automist improved survivability in both room sizes, increasing time to incapacitation by a factor of 6 and avoiding fatal conditions. In an open room scenario, Automist, at a distance of 5 m, was able to avoid unconsciousness and incapacitating pain from heat. When Automist was placed 8m away in a well ventilated room the effectiveness was reduced due to excessive secondary oxygen supply to the fire from the closest open door. Automatic door closer and/or retainers are a low cost addition which can be used to increase the effectiveness of Automist's ability to offer volume protection in rooms over 4 m x 4 m x 2.5 m or spaces susceptible to draft.

The Automist system was able to demonstrate an improvement in the room heat and asphyxiant gas conditions and the extent of fire damage in all the tests which an unsuppressed scenario was compared, extending the time taken to reach FED calculated human tenability levels.

## Specifying Automist

Automist design specification guidelines state that a single pump can cover an area of up to 32m<sup>2</sup>, with a maximum ceiling height of 3.5m. Based on third party test data, spray heads must be located within 5m line of sight of any possible fire location.



*Full coverage as the whole space is covered (e.g. two storey house kitchen elective install - not to meet building regulations).*

Small potentially blocked or shadowed floor areas shall be permitted on a horizontal plane in compartments of 64 m<sup>2</sup> (two pump units) or less as long as the maximum area of the total contiguous shadowed floor area, regardless of geometric configuration, does not exceed 2 m<sup>2</sup>.

Preliminary Automist designs can be recommended by specifiers by following these recommendations, however, Plumis accredited installers are trained to specify, install, commission and maintain the Automist system. Their early involvement in the project is recommended as they are required to verify installation proposals, provide critical supporting technical information and also commissioning certificates for project approval by Building Control or other involved third parties.

## Quality Assurance

### Concept

- Independently tested - Objectively and extensively tested by BRE Global

### Company

- Third Party Certification by BRE Global have established Plumis Limited have complied with the Quality Management Systems requirements of ISO 9001:2008 for the design, manufacture and supply of water mist fire suppression systems.

### Equipment & Components

- CE marked - Meets EU consumer safety, health & environmental requirements

### Installation

- Installation - Automist should be specified, commissioned and signed-off by Plumis or an Accredited Reseller. Each installer is fully trained to ensure that every project is installed to the very

highest standards, receiving a Plumis Certificate of Approval on successful completion of their training.

## Installation requirements

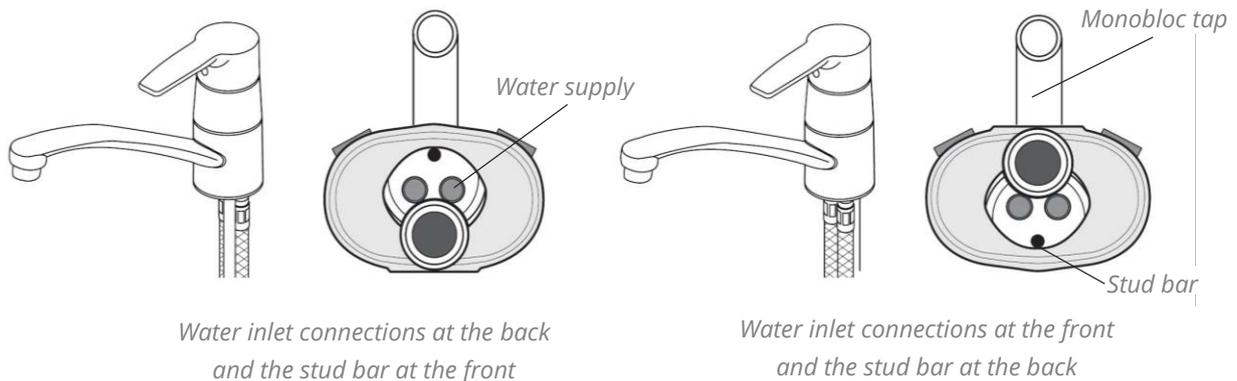
- Before installing ensure that the following have been provided at the installation site:
- Sufficient space to install the pump in accordance with these installation instructions. The pump is 365 mm (height) by 240 mm (depth) by 178 mm (width) and weighs 7.0 kg.
- The pump should be installed in one of the following locations with clearance of 100 mm at front and rear:
  - In a room or cupboard with volume of at least 0.124m<sup>3</sup>, that is separated by a fire resisting partition from the mist-protected room(s) that it serves, or
  - In a cupboard with volume of at least 0.124m<sup>3</sup>, within a room that the pump serves, with the top of the pump less than 80cm above finished floor level.
  - The pump located such that it is: a) unlikely to be affected by a fire b) protected in the event of fire; c) unlikely to be affected by flooding.
- A 3/4" water supply (connection) with an approved isolation valve located inside the cupboard and positioned so that the connection point will not be obstructed when the pump is installed.
- A cold water supply which can deliver 6 litres per minute flow at a minimum of 1 bar (100kPa) and a maximum of 10 bar (1MPa) static pressure. If multiple Automist units are to operate simultaneously, a proportionately higher flow will be required.
- A dedicated electrical supply circuit in FP200 cable.
- If the consumer unit is located in the same fire resisting compartment as the protected area, it should be protected by an electrical cover unit tested to BS476 Part 22 (1987) & EN1364-1 (1999).
- Flexible high pressure hoses should be mounted as close to the ground as possible and within the wall. For cases where the hose is exposed, conduit sleeves must be used. Where the hose is surface mounted more than 1.2m from the floor in a protected room, or where the hose passes above/within the ceiling of a protected room, a suitable thermally insulating sleeve may be required. Contact Plumis technical support for more details.
- Operating ambient temperature: above 4°C.

## Tap Compatibility

Automist has been designed to be compatible with the majority of monobloc taps (45 – 60 mm diameter base) that fit into a standard 35 mm sink or work surface hole.

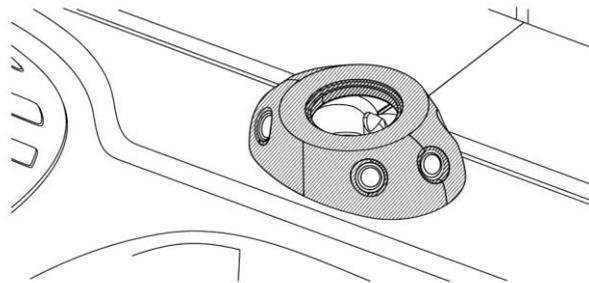
Monobloc taps are affixed to the worktop using a stud bar, which may be at the front or rear of the tap dependent on the tap model:

- Front stud configuration - Automist with active nozzles on the front of the manifold under a tap with a front facing stud bar
- Rear stud configuration - Automist with active nozzles on the back of the manifold under a tap with a back facing stud bar



Automist is compatible with either tap configuration but manifold must be configured to suit. Monobloc taps which have two studs, instead of one, at either the front or the back can also be used with either configuration.

The Automist tap head fits over a standard 35 mm hole. Ensure your selected sink or work surface has sufficient clearance around the hole so that the head can mate uniformly with the surface.



## Room Compatibility

A single Automist pump unit was tested by BRE Global in an area of up to 32 square metres (2.5m ceiling height) with fire hazards up to 5m away. The spray head should therefore be within 5m of & in the approximate line of sight of any fire hazards.

The maximum ceiling height must not exceed 3.5m following the guidance on BS 8458:2015. Higher ceiling applications require the involvement of a fire engineer.

**IMPORTANT:** Do not install Automist outside this specification without first discussing the design with Plumis. Installing Automist outside these guidelines without properly documenting and agreeing such variations could make you responsible for deaths or injuries.

## Detection System

Automist's reliability is dependent on the detection system. Automist is designed to be triggered by a correctly installed, positioned, and CE marked, heat alarm (BS 5446-2 compliant) or by a heat detector (EN54-5 compliant) connected to a fire panel<sup>1</sup>. Automist is activated by feeding its three-wire alarm input cable from a three-terminal relay that is triggered directly or indirectly by the relevant alarm or detector.

- Automist is designed to be connected to all three terminals of the relay: Common, Normally Open and Normally Closed. Any wired or wireless fixed-point heat alarm family that offers such a connection style may be used. A trigger point of 57 degrees (Class 1) is recommended.
- The pump monitors the C/NO/NC connections continuously. In the standby state, the relay must link the Common and Normally Closed wires together. In a fire state, the relay switches, instead linking Common to Normally Open.
- Relays with only Common and Normally Open terminals may also be used but in such cases the Automist pump must be customised by Plumis before shipping.
- **DO NOT** trigger Automist from a smoke alarm as this will lead to unwanted activations.
- **DO NOT** connect the Automist pump's alarm input to any device other than a volt free relay. In particular, connecting the three coloured cables to the alarm interconnect or to any power supply whatsoever is likely to damage the Automist pump beyond repair.
- In its default setting, Automist is programmed to run continuously for 30 minutes on activation. This is designed to prevent interruption of mist even if a heat alarm is damaged by extended exposure to fire.
- Where multiple Automist units are used, each must take its input from its own dedicated relay module e.g. the relay base of a heat alarm.
- Where multiple Automist units are used in a single space, the alarm system should activate all relay units in that space simultaneously. This can be achieved by interconnecting wired heat alarms, using one alarm relay to drive several additional relays, or associating multiple wireless relay modules with one or more wireless heat alarms.
- Manual call points may be used where the alarm / panel family used supports these and where they are configured to activate the associated relay.
- Fire alarm panels can add Automist by connection to a relay output provided that this operates only when the relevant heat detector(s) activate. If desired, SLAVE MODE can be ordered at time of purchase. This sets Automist to operate only while its alarm input remains active.
- Plumis recommends the use of mains powered heat alarms with back-up batteries since they significantly increase the reliability of the detection system.
- Ten-year lithium battery alarms are an acceptable alternative when installing a mains-powered alarm and relay causes unacceptable disruption. Wired lithium battery alarms with an integral relay are available: correctly configured, these report low battery to the Automist pump and cause it to go into a "beeping" error state, greatly improving safety: please refer to Plumis's recommended alarms documentation on the Plumis Partner Site.

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<sup>1</sup> Other specific alarms/detector models are also acceptable where Plumis has tested the products and documented their use on the Plumis Partner Site library page, provided that associated Plumis and manufacturer guidance is followed.

- Wireless ten-year lithium battery alarms are recommended only where a scheduled maintenance programme is in place. Alarms that use standard replaceable 9V PP3 batteries are not recommended.
- When using wireless detection, it is not recommended to use complex house coding schemes with overlapping zones, as installer errors can easily lead to incorrect operation and are hard to track down.
- Where the relay is not installed adjacent to the pump that it triggers, FP200 or a suitable fire alarm cable that resists fire for at least 30 minutes must be used for the cable run between the pump location and the relay.
- Placement of heat detectors / alarms should follow either BS5839-6:2013 section 11.2 (h) to (n) or BS5839-1:2013 section 22.3. Notably this implies a working range of no more than 5.3m for heat alarms and gives guidance on unusual ceiling types.
- Automist's use of heat alarms 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.

**DO NOT** install heat alarms:

- Directly over the cooker, stove or oven.
- In areas with high humidity, like bathrooms or shower rooms, or areas too close to dishwashers or washing machines. Install heat alarms at least 3m away from these areas if possible.
- Adjacent to, or directly above, heaters, air-conditioning vents or ceiling fans.
- In an area where the temperature may fall below 4°C or rise above 37°C.
- Near fluorescent lights. Electrical noise & flickering may affect the operation of the heat alarm.
- Closer than 300mm to light fittings.
- In such a position that it is difficult or dangerous to reach for testing or maintenance or where children can easily tamper with the alarm.
- In an area where water or other liquids may enter the alarm, except in the extremely unlikely case that the alarm and its connections are waterproof.
- On surfaces subject to significant vibration.

**IMPORTANT:** Ensure Automist is only connected to the main heat alarm(s) in the volume it protects. You can check these interconnections using the product's ALARM TEST MODE (see page 23). In this mode, the alarm lamp will light to indicate a functioning alarm input. Ensure that Automist has been successfully returned to the System OK state following this test, and that the water supply remains open, and that nozzles are unobstructed.

Please refer to BS 5839 for further information on the installation of heat alarms.

## Installation Procedure

- A) Preparing the site
- B) Configuring the spray head
- C) Installing the Automist Head
- D) Connecting the water supply
- E) Connecting the electrics
- F) Commissioning and maintenance

### Notice!

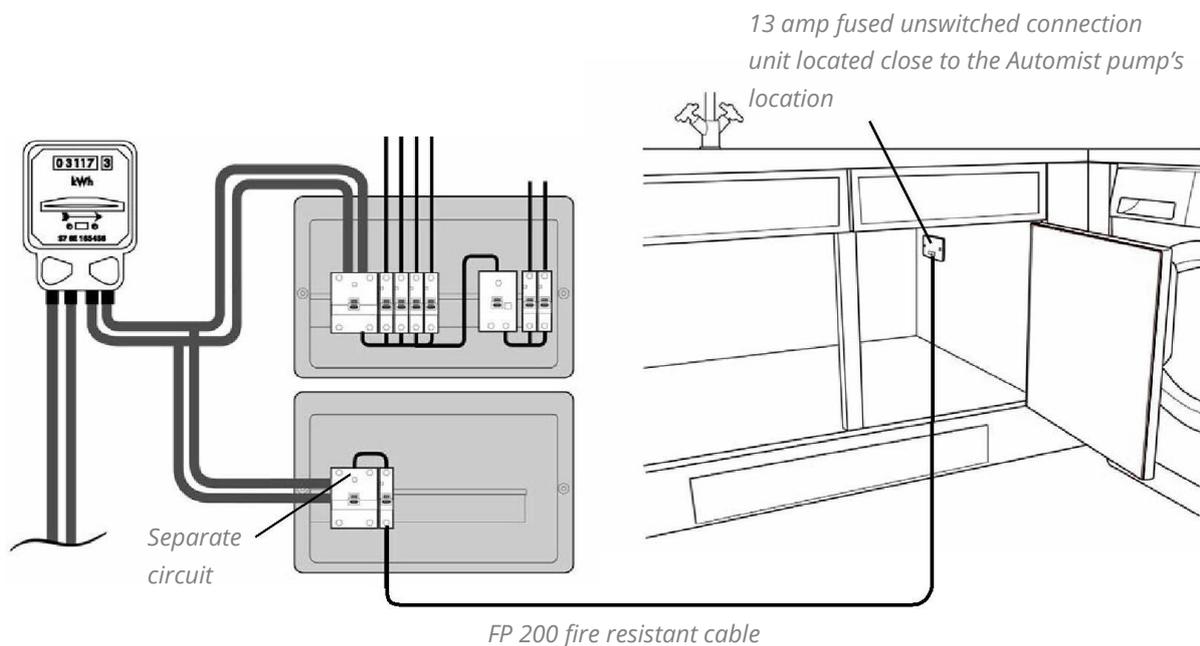
Equipment you will need:

- A suitable tool for tightening BSP hoses
- A set of screwdrivers / a suitable electric drill
- Electrical cable
- A pressure gauge kit
- Stud extender or nut wrench
- A commissioning kit (gauge, nozzle tool)
- PTFE plumber's tape

## A) Preparing the site

**Important!** Connecting the system to the mains requires a competent electrician with 17th Edition Electrical Qualifications. The Automist circuit should be clearly labelled (a sticker is provided for this purpose). Automist requires an independent 230V a.c. / 50Hz electrical supply, not shared with other unrelated devices. Components of the fire detection and alarm system may use this circuit, which must remain powered in the event of a fire. Power to Automist must be provided via an unswitched fused connection unit (FCU). Automist should be supplied using FP200 cable or better, ideally inside conduit or protected 50mm deep within a wall, and with no RCD or RCBO protection. RCD or RCBO protection may be required, however, by applicable electrical installation regulations, in which case the circuit design must be such that the operation of any other RCD, RCBO or safety device does not affect the operation of Automist. Typically, on a split-load board, Automist should be connected to the non-protected side of the board. Where there are no spare ways in the existing consumer unit, or there are no available non-RCD protected ways in the existing consumer unit, the electrician may wish to use a Henley Block to provide new tails to a second distribution board (typically a 2- or 4-way unit).

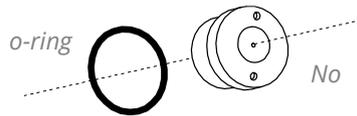
The Automist unit presents a part-inductive load and therefore caution is required when using type “B” miniature circuit breakers. Type “C” & “D” may be suitable. Because Automist is often used for life safety applications, installers should add a suitable safety margin to the MCB ratings. The circuit supplying a single Automist unit would commonly be protected by a type ‘C10’ or ‘B16’ MCB, for example, or ‘C20’ / ‘B32’ for two Automist units. If the consumer unit is located in the protected area it should be protected by an electrical cover tested to BS476 Part 22 (1987) and EN1364-1 (1999). If the electrical installation is required to follow BS 8458 DPC, the stipulations of that standard should be adopted; in particular it requires the use of fuses rather than MCBs and requires a “separately fused connection taken after the meter and from the supply side of the domestic or residential fuse box”.



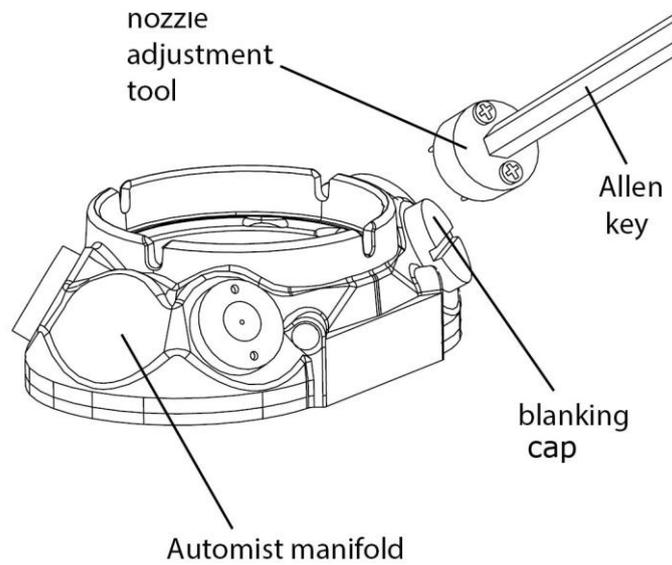
## B) Configuring the Spray Head

Only the Plumis technical team, a Fire Engineer or an Accredited Installer/Reseller can specify appropriate locations and configurations for Automist.

Whilst referring to the layout specification, adjust the nozzle configuration to suit the space. Use the nozzle adjustment tool provided with the commissioning kit 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.



The nozzle adjustment tool should be used to fasten the blanking caps in place.



The table below shows the options of jets depending on the layout of the area to be protected:

Layout	Nozzles
4 nozzle spray (4N)	4 x A8
3 nozzle spray (3N)	2 x A12 + 1 x A8
2 nozzle spray (2N)	2 x A16

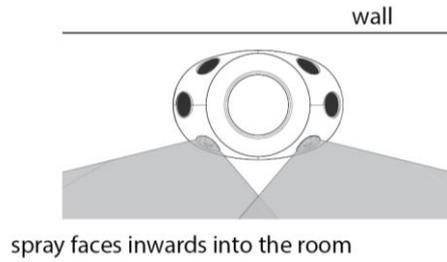
N.b. The lower the nozzle number, the lower the flow (litres per min)

### C) Installing the Automist Head

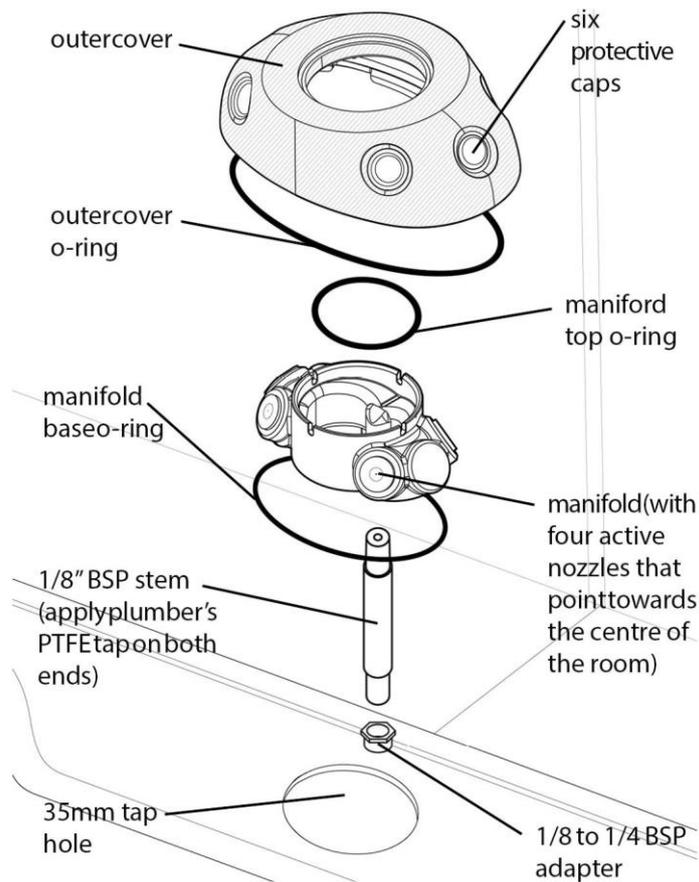
Shut off the water supply and remove the existing tap from the sink assembly.

Place the assembled Automist head in the 35mm hole. Ensure the three o-rings are correctly placed to seal the unit.

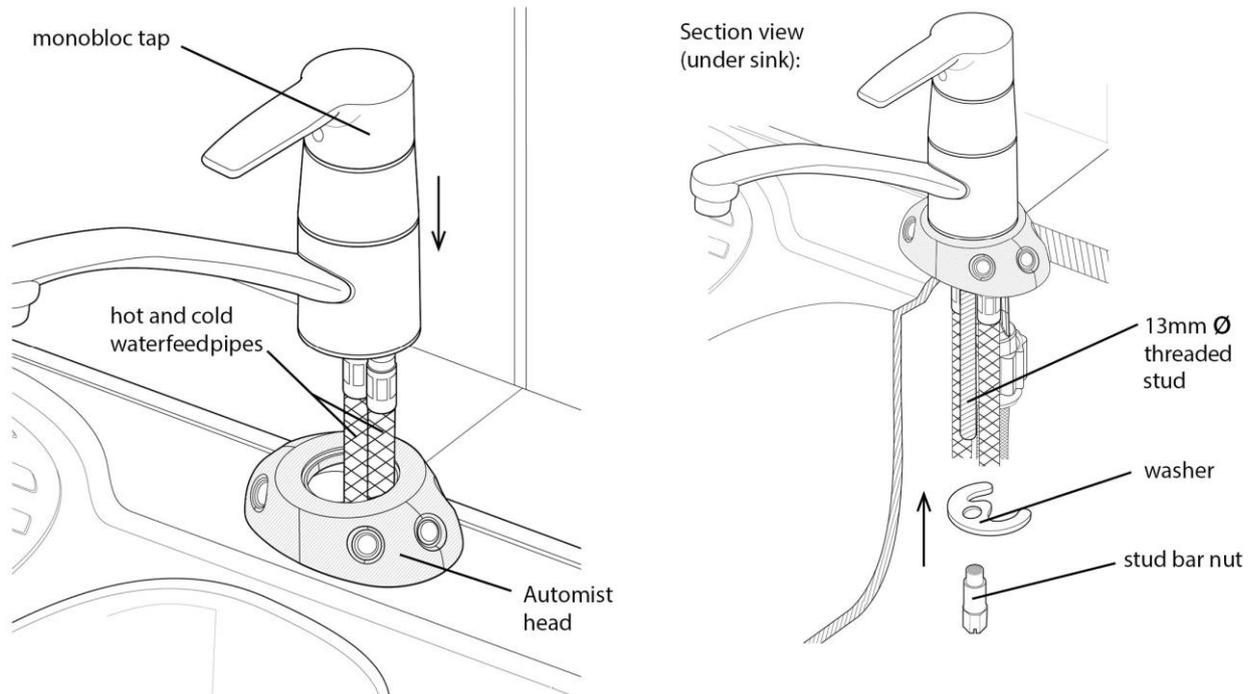
**IMPORTANT:** When installing an Automist head with four nozzles you must make sure the active nozzles are pointing into the room and not towards the wall.



Assemble the tap spray head as shown (below)



Pass the hot and cold tap water feed pipes through the Automist head and connect them to your tap.



Screw in the stud bar and tighten the nut to clamp the Automist head and tap in place. Certain installations may require an extended stud bar. Ensure the tap and manifold are correctly aligned before tightening.

## D) Connecting the water supply

The pump should be installed in one of the following locations:

- In a room or cupboard with volume of at least 0.124 m<sup>3</sup>, that is separated by a fire resisting partition from the mist-protected room(s) that it serves, or
- In a cupboard with volume of at least 0.124 m<sup>3</sup>, within a room that the pump serves, with the top of the pump less than 1m above finished floor level.

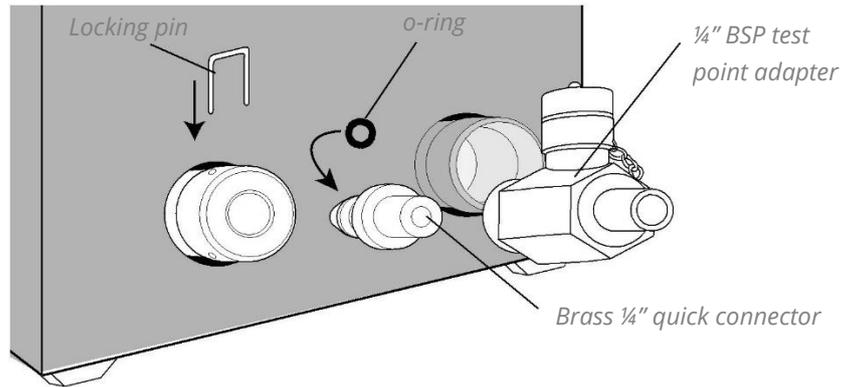
**IMPORTANT:** Leave a 100 mm gap without obstruction at both the front and back of the pump. Do not cover the pump with any products or materials.



**IMPORTANT:** If new pipe has been fitted remember to flush out any contaminants before connecting to Automist, to avoid clogging the nozzles.

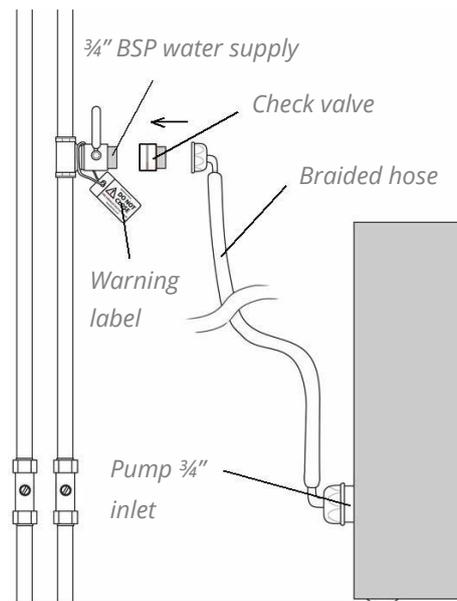
Connect the high pressure hose from the assembled head to the outlet on the pump. Plumis supplies suitable high-pressure hoses. If using another brand of hose, follow Plumis's guidance note, available on the Plumis Partner Site. All high pressure hoses should have a minimum working pressure of 150 bar, minimum internal diameter of 6.3mm and a minimum burst pressure of 600 bar. For hoses longer than 4m, hoses with a robust rubberised exterior and double wire braiding are recommended such as DIN EN 853 2SN / SAE 100R2AT or DIN EN 857 2SN, rated to 400 bar working pressure and a minimum internal diameter of 6.3mm. Hoses crimped on-site must be pressure tested to at least 150 bar before the commissioning procedure to check for correct assembly. High pressure hoses left exposed in the protected volume, particularly at height, could be compromised in a fire. Hoses should therefore be encased in the wall whenever possible. Where possible, hoses should be run low in the room, all other factors being equal, and in any case the locations of hoses must be chosen so that they will not be exposed to temperatures above 100°C. For hoses longer than 10m and up to 20m, please refer to the high pressure hose technical specification document on the Partner Site. Longer hoses require an increased internal diameter of 5/16" to account for the higher pressure drop. **IMPORTANT: Plumis's most recent guidance document on hose specification is more detailed and overrides this document if there is any ambiguity.**

A brass quick connector and locking pin is supplied to connect the high pressure side of the pump to the spray head. A small o-ring is included. The locking pin retains the quick connector in the pump outlet but can be easily removed, for example in order to drain water from the high pressure hose. Connect the test point adaptor between the high pressure hose and the quick connector. The test point adaptor is required as part of the commissioning procedure (see page 22).



The Automist pump unit should be housed close to a 3/4" BSP water supply with an approved isolation valve to the check valve. A synthetic rubber washer is supplied with each device to facilitate fitting to the flat-faced outlet. To connect the braided hose apply 6Nm using a calibrated torque wrench, or hand tighten the hose and then using a conventional wrench, apply another 1/2 turn clockwise to guarantee a reliable seal.

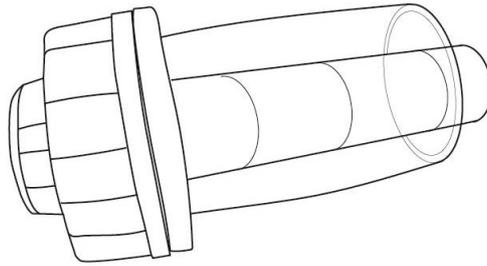
**IMPORTANT!** Do not attempt to operate the pump without the quick connector o-ring. Always properly replace the quick connector, o-ring and locking pin after removal.



**IMPORTANT!** To comply with water regulations, an approved isolation valve must be used when connecting the check valve to the mains. A cable tie is provided to tie the Automist supply pipe label to the isolation valve. The warning label must be visible but must not obstruct isolation valve operation.

**IMPORTANT!** An additional provided filter is required for each installation within the low pressure water path (mains-water inlet). It can be connected:

- Before the Check Valve OR
- Between the Check Valve and the Flexible Hose OR
- Between the Flexible Hose and the Pump's inlet connector.



Only a single spray head can be used with each Automist pump.

**IMPORTANT!** To enable a consistent pressure and seal for all low pressure water interface washers, the correct amount of torque should be applied to each low pressure connection. This can be accomplished in 2 ways (with the washers and mating surfaces kept dry):

- i) Apply 6Nm using a calibrated torque wrench

OR

- i) Hand tighten the hose.
- ii) Using a conventional wrench, apply another 1/2 turn clockwise to guarantee a reliable seal.

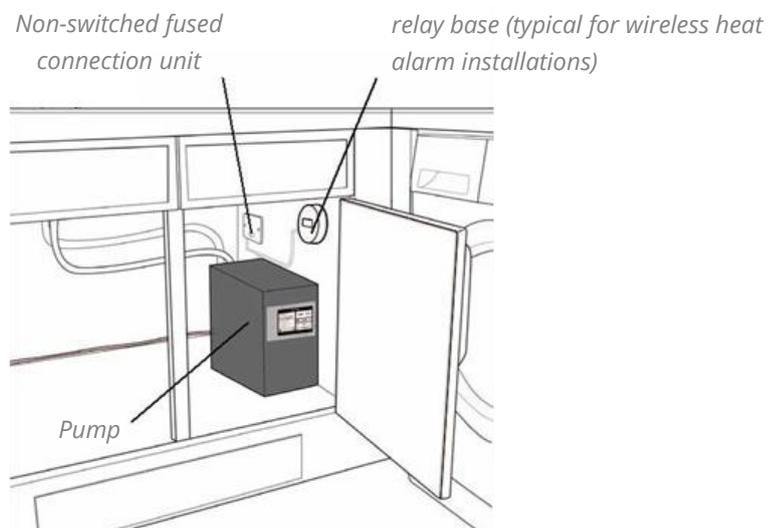
## D) Connecting the electrics

**IMPORTANT!** The Automist pump should be positioned in a safe and dry location where it is easily accessible, the button will not be pushed accidentally, and the front panel remains visible when the access door is open. For installations that require a wireless relay receiver, position the relay base on the wall next to the Automist pump unit, as close as possible to the front of the cupboard door.

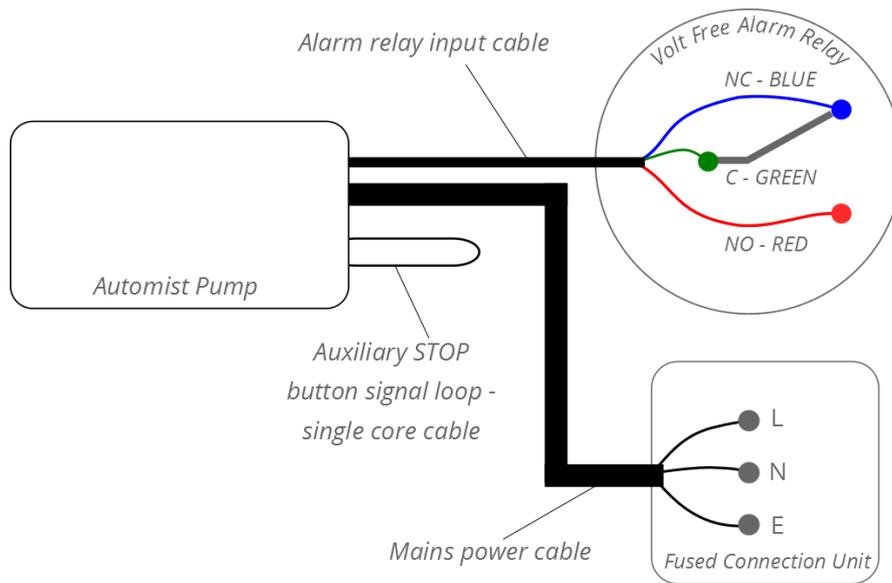
**IMPORTANT!** Connecting the power requires a suitably qualified & competent person. Switch off electricity at the mains before working on existing circuits.

**IMPORTANT!** Follow the detection/relay guidance on page 11.

**IMPORTANT!** The relay must be set to continuous, not pulse mode, if applicable.

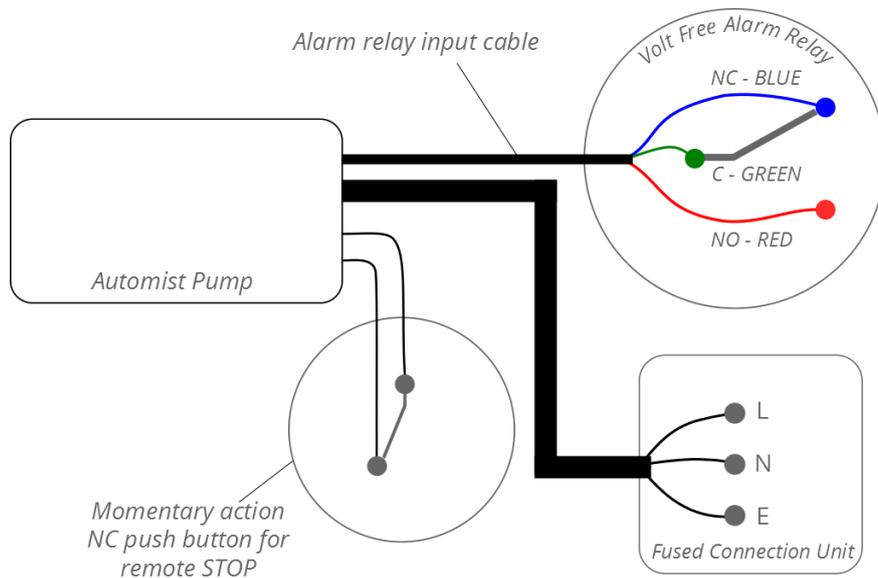


View of the system upon installation completion (under sink)



Wiring diagram for Automist Pump

In addition to the alarm relay input and the power cables at the rear of the unit, the pump features a single core loop cable. This is to allow an auxiliary (external) STOP button to be added, for example if the pump is installed enclosed in a space where the STOP button is inaccessible. Where required, the loop should be cut and each end of the wire connected via FP200 cable to a momentary action, normally closed, push button switch (see diagram below).



The button should have an appropriate IP rating (e.g. IPX5 if used in the room protected by Automist), located as close to the pump as possible and should be clearly labelled. The auxiliary button cannot be used to commission the unit but can be used to enter ALARM TEST MODE (see page 23). Technical notes on suitable buttons are available from the Plumis Partner Site.

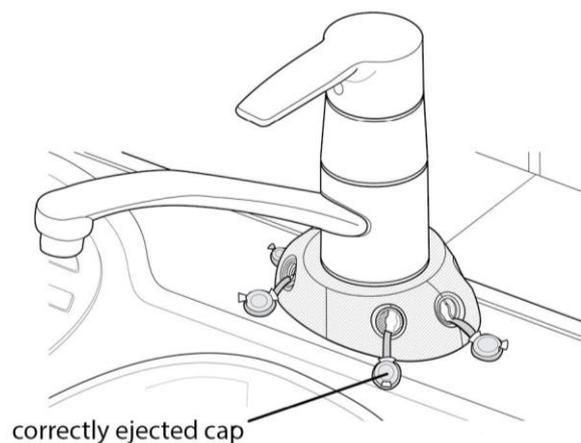
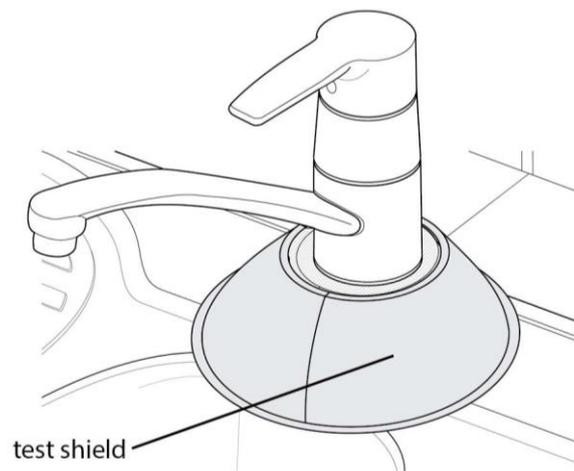
## E) Commissioning and maintenance

**IMPORTANT!** Commissioning is required:

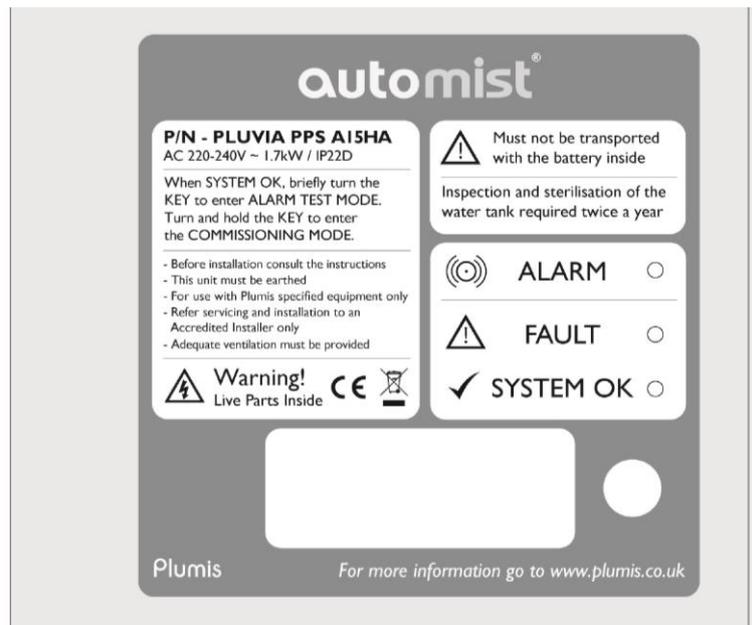
- Once all the components of the system have been installed and the system is powered.
- As part of a yearly maintenance cycle
- If plumbing or construction work takes places, new alarms are installed or maintenance work occurs which could affect the system.
- Commissioning must be performed by an Accredited Automist Installer yearly.

When Automist is powered up for the first time the yellow FAULT LED will indicate that the system has not been commissioned. 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.

Use the rubber shield provided to direct the resulting spray into the sink for under-tap installations.



## The Automist Controls



**STOP Button:** Pressing the STOP button during a fire condition will stop the Automist pump for 2 minutes. If at the end of 2 minutes, an alarm input remains active, Automist will recommence mist operation. If the alarm condition has ended, Automist will return to stand-by.

In error conditions, pressing the STOP button temporarily hushes the error sounds.

In the SYSTEM OK stand-by, the STOP button 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.

**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 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.

**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.

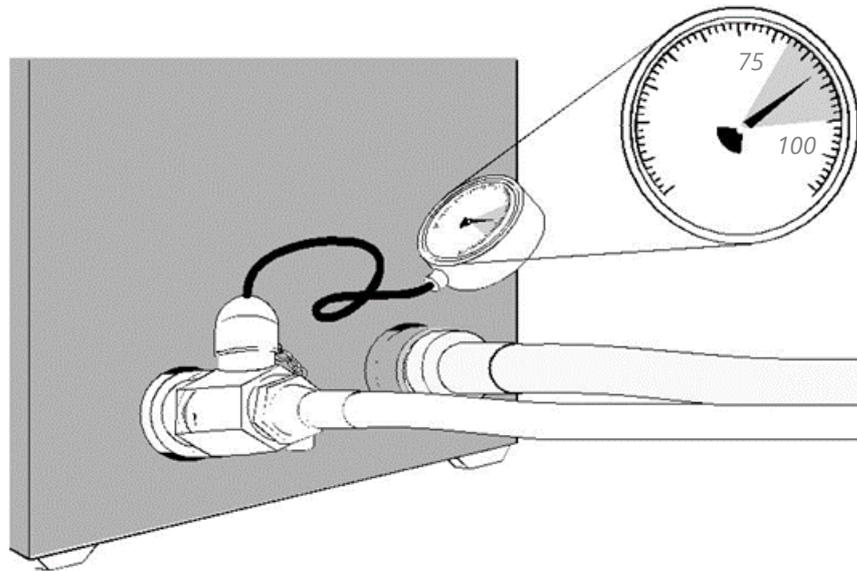
## Commissioning Procedure

1. Unscrew the cap and connect the test hose and gauge to the test point adapter. Place the test shield around the tap mount spray head, or place the wall mount spray head behind the maintenance tool or within a plastic bag
2. Press and hold the STOP button for more than 5 seconds. A long beep followed by four short beeps indicate that you may release the button. 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.
3. Test the heat alarm / fire panel output as recommended in its user manual. **Keep the alarm output on for more than 15 seconds**). N.B. Some heat alarms take up to 10 seconds to

trigger their alarm relays: the alarm may have to be kept sounding for this period to activate Automist.

4. 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.

**IMPORTANT!** The pump features a cut-out which will disable it if the pressure becomes excessive, so it is critically important not to leave an installed system with a high out-of-spec pressure. By leaving an installed system with pressures outside the specified range, you might become liable for deaths or injuries. If the achieved output pressure is outside the specified range, refer to the commissioning troubleshooting guide (see page 29) and contact Plumis on 020 7871 3899 if the situation cannot be resolved.



5. Make sure you replace the mist head if you move it, with the active nozzles pointing into the centre of the room. Slight dripping from the head assembly itself may occur during testing. This need not be addressed but may be remedied with silicone sealant under the head if desired.
6. Once you have successfully commissioned your unit, complete the online commissioning form and attach a layout diagram.
7. Place the two warning stickers and the commissioning label:
  - Label the separate circuit on the circuit breaker
  - Label the heat alarm that triggers Automist, preferably near the test button
  - Complete the installer commissioning label and affix to your Automist unit
  - Complete the user manual with the relevant information for the occupier

**IMPORTANT!** Record the output pressure from the commissioning gauge on the Installer Label (as shown above) and keep a note of the details for the online commissioning form.



<b>automist</b>		5.60 l/min		80 bar	
		cold water inlet only			
Installer _____		Installation date _____			
Installation Company _____					
Person responsible for maintenance _____					
Contact details of person responsible for maintenance _____					
Maintenance log: <i>Maintenance is required</i> _____					
Date	Pressure	Date	Pressure	Date	Pressure
All installations must be registered - <a href="http://www.plumis.co.uk">www.plumis.co.uk</a>					

### About your Automist System

In the event of a large fire, Automist will spray a fine mist of water. It is set off by a heat alarm, and won't go off due to smoke.

If it does go off and you need to stop it, there is a STOP button.

**DON'T** put objects in the way of the spray nozzles

**DON'T** press the button on the Automist heat alarm

And in the event of a serious fire, **DO** leave the property and call 999.

You can clean the spray head(s) with a damp cloth.

The Automist spray nozzles and heat alarm(s) are installed in the	
The pump is located	
The STOP button is located	
If the Automist system is making sounds or leaking water, call	

To avoid hazards, all installation procedures and maintenance must be carried out by an Accredited Automist Installer.

For further information about your Automist system visit: [www.plumis.com](http://www.plumis.com)

**Plumis**

- Carefully remove the test hose and gauge and re-attach the cap on the test point adapter.

**IMPORTANT!** Leaving water in high pressure hoses following the commissioning/servicing process can lead to dripping nozzles, particularly if any part of the hose passes above the nozzles. In order to prevent this, the

water should be expelled after commissioning by attaching a Presta valve compatible bicycle pump to the brass quick connector fitting (p18**Error! Reference source not found.**). Always properly replace the quick connector, o-ring and locking pin after any such operation. Failure to do so could result in death or injury.

9. Verify that any wireless detection is correctly set up. If you used wireless Aico detection:
  - a. Use a battery powered Aico detector in factory mode or the Aico tester key fob (again in factory mode), to see whether either will set your system off. Use ALARM TEST MODE which mutes the pump while doing any connectivity tests. If the ALARM lamp lights when you sound any given detector for a few seconds, that means that the Pump will activate when that alarm goes off. This should only happen for the specific heat detectors linked to Automist.
10. Complete the user manual / information sheet with a permanent pen.

## Post-installation checklist – Key points for installers and Building Control

### Power supply

- The Automist circuit should be clearly labelled (a sticker is provided for this purpose).
- Power to Automist must be provided via an unswitched fused connection unit (FCU).
- Automist should be supplied using FP200 cable or better, ideally inside conduit or protected 50mm deep within a wall
- Automist may be protected by an RCD or RCBO but this protection must not be shared with other circuits. Therefore Automist should be connected to the non-protected side of the consumer unit.
- The circuit supplying a single Automist unit would commonly be protected by a type 'C10' or 'B16' MCB, for example, or 'C20' / 'B32' for two Automist units.
- If the consumer unit is located in the same fire resisting compartment as the protected area, it should be protected by an electrical cover unit tested to BS476 Part 22 (1987) & EN1364-1 (1999).

### Water Supply

- check valve and filter must be installed to protect the mains water supply from back flow and the pump from debris (supplied in kit).
- Inlet water must be connected and the valve left open.
- WRAS approved isolation valves (or equivalent) are required so that the Automist system can be shut off from the water main. All such valves should be labelled with the included supply warning labels.
- Priority valves are not normally required but should be used in circumstances where the water supply may otherwise be inadequate.
- Several pumps can be supplied from the same 15mm water pipe as long as they are not intended to activate at the same time. Larger diameter piping may be required for simultaneous activation of more than a single pump.

### Pump & Placement

- All Automist units should have been successfully commissioned using heat detectors, with outlet pressure verified.
- Minimum ventilation / cupboard size requirements met (124 litres).
- In a room or cupboard that is separated by a fire resisting partition from the mist-protected room(s) that it serves, or the pump located such that it is: a) unlikely to be affected by a fire, b) protected in the event of fire; c) unlikely to be affected by flooding.
- Each Automist pump should show "System OK" (green LED), indicating it has been successfully commissioned.

## Alarm Relay Placement

- Each Automist unit should be activated by its own separate relay device.<sup>2</sup>
- Each relay must be located so that it is a) unlikely to be affected by a fire; b) protected in the event of fire; c) unlikely to be affected by flooding or by dripping/splashing water; d) unlikely to be subject to unusual vibration.
- 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.

## High Pressure Hose

- High pressure hose should have been flushed with air to remove water, avoid dripping and Legionella.
- High pressure hose should be protected by a fire resisting barrier.
- It is critically important that the high pressure hose locking pin (behind the pump) is in position so that the quick connector and o-ring are firmly retained after any operations that required disconnection of the high pressure line.

## Coverage

- Ensure that coverage is provided throughout the protected area.
- Head placement must match the layout drawing supplied with the commissioning form.

- **IMPORTANT! In contrast to Automist Smartscan and the Fixed Wall Head, the Automist Tap Head is not LABC registered, and is not typically used for building regulation compliance unless supported with a fire engineering justification.**

## Documentation

- Installer sign-off details (including pump pressure) are noted on pump
- An occupant information sheet should have been provided to the property
- The Installer Commissioning form should have been provided (can be obtained from Plumis or the installer) with a matching layout drawing
- The Plumis Warranty Certificate is provided (can be obtained from Plumis) once the layout has been submitted and approved by Plumis.

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*2 Single throw relays must not be shared between multiple pumps. Each pump must have a separate relay, or where a multi-throw relay has been used, each pump must have a separate "throw".*

## Cleaning

The Automist wall-mounted head should be wiped clean with a damp cloth. Do not attempt to clean with any other chemical cleaners or abrasives

## Repair

**CAUTION!** Do not attempt to repair the Automist wall head or pump unit. Doing so will invalidate your warranty.

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

## Troubleshooting

Problem	Probable Cause	Recommended Action
Pressure does not consistently reach correct range (too low) during commissioning procedure	Leakage between pump and Automist head	Check for leakage on the high pressure water path, for example the quick-fit connector may not be secured or its o-ring may not have been fitted.  Re-run commissioning.
	Blockage at the pump inlet	Close off the water with the isolation valve.  Disconnect the hose at the pump inlet and check for blockages on the pump strainer and within the inlet hose.
	Incorrect Nozzle specification	Check to see the correct specified nozzles have been installed (nozzle "A" numbers should sum to 32 on each pump, where present).  Please contact your Automist supplier.
	Mains pressure or flow is too low	Close off the water with the isolation valve and disconnect the hose.  Verify that the water mains connection can supply at least 6 litres per minute (lpm) of flow and if possible check that the static inlet pressure is at least 1 bar.  If the flow is close to or below 6 lpm, the mains pressure may be too low for Automist to operate correctly, or there may be constrictions in the water supply. A plumber should be called to resolve the issue.

	Pump not providing enough flow	<p>Re-run the commissioning procedure with the high pressure hose outlet placed inside a container with volume markings.</p> <p>If the 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.</p>
Pump persistently produces a warbling sound and shows FAULT lamp	<p>Pump not yet commissioned</p> <p>Incorrect wiring to pump or spray head</p> <p>Pump or spray head damaged in transit</p>	<p>The number of beeps (or trills) that the pump sounds when in fault mode is intended as a diagnostic. Please count the beeps:</p> <p>two beeps is the normal state of the decommissioned pump</p> <p>three beeps – wiring fault: check that you have correctly wired exactly one pump to exactly one relay (see page 20) and that the pump's external stop loop cable has not been broken (p20 onwards). If an external STOP button is in use, check that this provides a normally closed connection.</p> <p>four beeps indicates that the STOP button is stuck. This fault is very rare and requires a replacement pump.</p>
Pump does not run during commissioning although there is power to Automist unit	<p>Trigger alarm not connected to Automist</p> <p>Relay not functioning or incorrectly wired</p> <p>Pump damaged in transit</p>	<p>Check that you have not attempted to connect more than one pump to a single relay.</p> <p>Verify that alarm is connected properly by shielding the spray head, powering the pump off and on and sounding an associated alarm for at least 10-15 seconds. Automist should be triggered. Once activated, cancel the alarm condition by pressing STOP on the pump.</p> <p>If Automist is not triggered, power off the system and replace the relay with a two-way a.c. light switch. The NO and NC terminals on the switch will normally be labelled L1 and L2 (both L1 and L2 terminals must be present and connected). The pump may immediately start when power is restored: if so, switch the switch, power off and try again. Try to commission the pump using the switch in lieu of a detector's test button. If you can commission the pump using a light switch instead of a relay, the fault is with the relay or relay wiring.</p>
Power circuit trips out as soon as pump starts	Too-small MCB used for Automist circuit	Please refer to page 14.

No mist is produced, although pump runs during commissioning test	Loose high pressure hose, leakage between pump and Automist head  Water supply is interrupted	Check for gross leakage on the high pressure water path, for example the quick-fit connector may not be secured or its o-ring may not have been fitted.  Re-run commissioning.  Verify that the isolation valve is open and that there is a water supply to Automist.
	Severe blockage at the pump inlet	Close off the water with the isolation valve.  Disconnect the inlet hose and check for blockages on the pump strainer and within the hose.
	Pump damaged in transit	Disconnect the high pressure hose from the Automist head and re-run the commissioning procedure with the high pressure 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.
Pump pulses or stutters during commissioning test	Incorrect Nozzle specification	Check to see the correct specified nozzles have been installed (nozzle "A" numbers should sum to 32 on each pump, where present).  Please contact your Automist supplier.
	Pump malfunction	Disconnect the high pressure hose from the Automist head.  Re-run the commissioning procedure with the high pressure hose outlet placed inside a container with volume markings.  If volume of water is less than 1.6 litres, the pump is not providing adequate pressure. Please contact Plumis technical support.
	Manifold Blocked	Please contact Plumis technical support.
	High pressure hose blocked	Disconnect high pressure hose between the Automist head and the pump  Check whether the hose is blocked.  If hose is blocked, call 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.