

Automist Smartscan Hydra® Design, Installation, Operation and Maintenance (DIOM) Manual

Version 2.00.0

The Smartscan Hydra DIOM Manual is designed to provide stakeholders with essential information regarding specification, installation, maintenance, and commissioning of the Automist fire protection device.



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INTRODUCTION TO SMARTSCAN HYDRA

Introduction

- READ ALL OF THESE INSTRUCTIONS.
- Retain this guide for later use.
- The content in this manual may differ from the product and is subject to change without prior notice. It is recommended to check you have the latest version of DIOM from Plumis website before proceeding.
- Follow all warnings, cautions and instructions contained in this manual.
- This device not to be used by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction (excluding children).
- To avoid hazards, all installation procedures and maintenance must be carried out by an Accredited Automist Installer (with a valid accreditation certificate).
- Once installed, complete and submit an installation and commissioning form to Plumis.
- Automist Smartscan Hydra requires recommissioning at least annually to provide effective protection.
- When this product has reached the end of its serviceable life, it must be disposed of in a safe manner.
- It is the designer's responsibility to ensure when using the product as part of a fire strategy or for code compliance to ensure the system is installed as per the guidelines (see Room Compatibility, page 13).

WARNING: The system operates with high voltage and high pressure. Pay attention to the hazards during the installation. Suitable PPE must be used if necessary!

Automist Smartscan Hydra Operation

When triggered by a Plumis multi-sensor wireless alarm or a wired detector, all the linked spray heads will begin scanning. They start measuring the temperatures within the room using an infrared (IR thermopile) sensor. The scan is looking for an exceptionally high temperature reading, or a differential increase between scans. Once the temperature exceeds a threshold that head is deemed to have successfully located a fire. All heads which locate a fire during a scan are then compared to see which has the best view.

The selected spray head will lock onto the selected location, and activate the high-pressure pump, driving mains water through the unique nozzle unit, quickly directing a dense fog into the location of the fire. The high momentum vertical spray orientation with a horizontal trajectory is designed so even shielded fires can be saturated with a turbulent flow of mist, suppressing the fire.

Watermist has a different principle of firefighting to traditional sprinklers which suppress fires by wetting surfaces and directly cooling the flames with large water drops. Water mist uses fine droplets, that evaporate at the base of the fire, to extract heat and displace the oxygen fuel. This results in fire control, suppression, or extinguishment. Our spray heads are wall mounted (around light switch height) to avoid ineffective evaporation in the hot layer in the ceiling and the upward flow of hot combustion products. Automist leverages the natural turbulence the fire creates and seeks to ensure watermist is entrained in the fire plume.

Automist is a member of the International Water Mist Association's (IWMA) and of its "Archimedes Club" for the products which utilise the principle of buoyancy to improve the performance of water-based fire-fighting system. Archimedes principle states that the upward buoyant force exerted on a body immersed in a fluid (i.e. liquid or gas), whether fully or partially submerged, is equal to the weight of the fluid that the body displaces and acts in the upward direction at the centre of mass of the displaced fluid.

The Automist Smartscan Hydra System

1. WRAS approved isolation valve
2. Automist Smartscan Hydra supply label & cable tie
3. ¾" single check valve (AC03)
4. Filter (AC03)
5. PRV (P0001) (AC03)
6. ¾" stainless steel inlet hose (AC03)
7. Automist Smartscan Hydra pump unit (AP08)
8. Automist Smartscan Hydra controller (CT01)
9. Quick connect with test point for pressure gauge (AC03)
10. High pressure outlet hose (or high-pressure stainless-steel pipe)
11. Assembled Automist Smartscan Hydra head(s) (SH11)
12. Plumis wireless multi-sensor detector(s) (DT01)
13. Specified wired detector (Apollo Orbis or A1R)
14. Sticker set (not shown) (AC03)

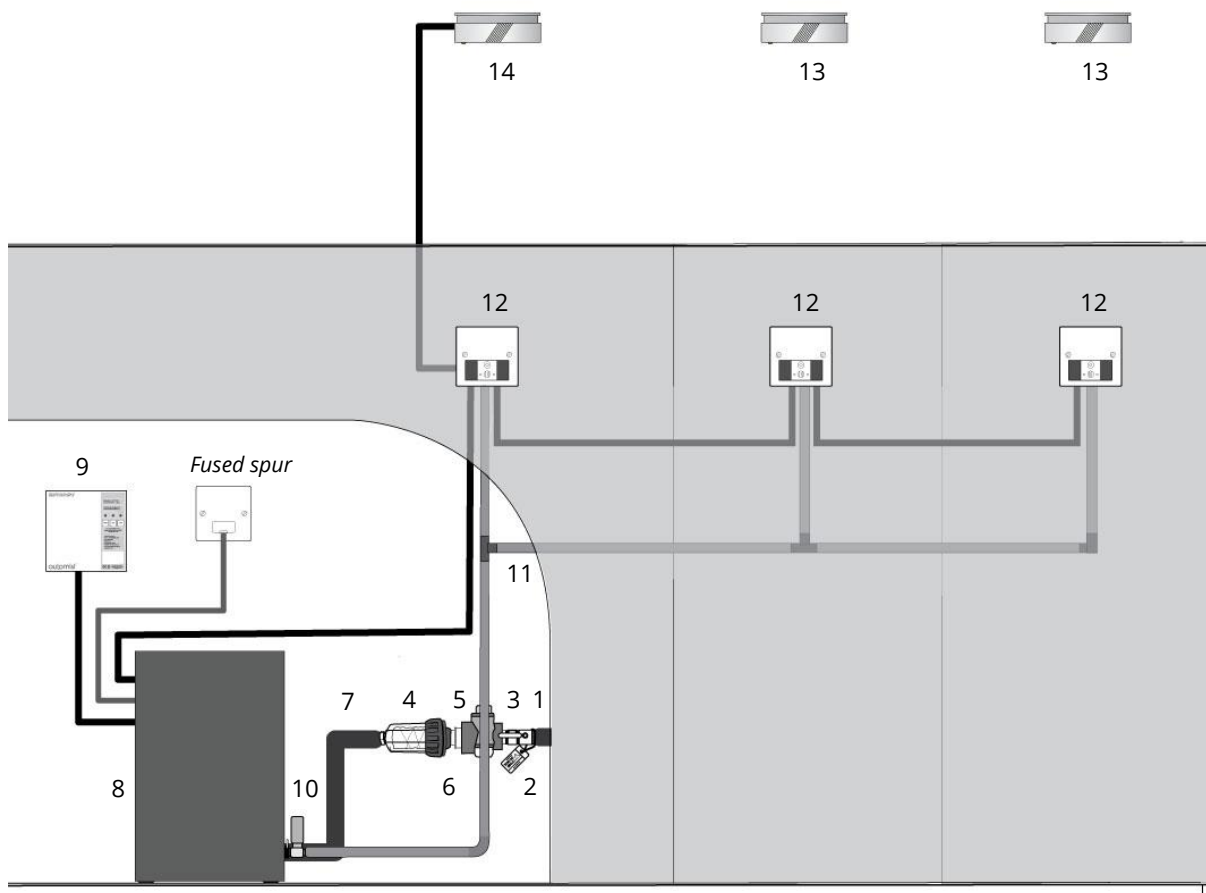


Figure 1: Automist Smartscan Hydra System Diagram

Water Supply Components (in required order)

Assembly Order

1. 3/4" BSP water supply
 - i. WRAS approved isolation valve
 - ii. Non return valve
 - iii. PRV (PTFE on both sides for sealing)
 - iv. BSP 3/4" nipple
 - v. Washer
 - vi. Filter
 - v. Washer
 - vii. Hose
 - v. Washer
2. Pump

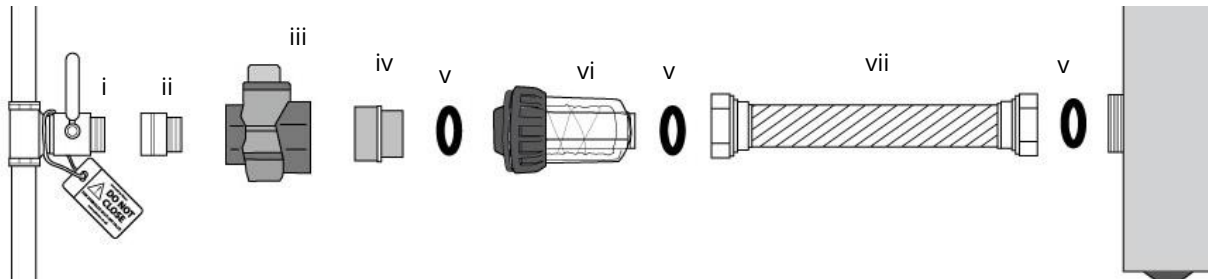


Figure 2: Automist Smartscan Hydra System Water Supply Components

Automist Smartscan Hydra Compliance and Fire Performance

Automist Smartscan Hydra was independently tested by Exova Warringtonfire and was able to demonstrate full compliance with the fire performance criteria of the BS 8458:2015. In short, Automist Smartscan Hydra is performance compliant with BS 8458:2015 despite not being fully prescriptively compliant, which is the essence of innovations: a smarter approach to reach the same end goal: suppression performance.

The full report "BS 8458: 2015: Annex B, Method for Measuring the Capability of a Watermist System to Control a Fire - "Room Fire Test for Watermist Systems with Automatic Nozzles" Document Reference 396489" can be downloaded from the Plumis website.

For more details on the descriptive and performance requirements of BS 8458:2015 please see table 3 in Appendix A.

UKAS Accredited Certification Body, BSI have also issued a certificate of verification to BS 8458:2015 (VC 656504) for Hydra's predecessor Automist Smartscan Hydra.

The following harmonised standards and/or other relevant standards have been applied:

**1) Radio Equipment Directive
Health and Safety (Article 3.1a)**

EN60730-1 :2016

EN60730-2-8 :2002

EN62311 :2008 / EN62479 :2010

Electromagnetic compatibility (Article 3.1b)

EN50130-4 :2011+A1:2014

EN61000-6-3 :2007+A1:2011

EN301489-17 V3.1.1

Radio frequency spectrum usage (Article 3.2)

EN300328 V2.1.1

2) RoHS Directive

EN50581 :2012

Plumis' Quality Assurance

Third Party Certification by BRE Global have established Plumis Limited have complied with the Quality Management Systems requirements of ISO 9001:2015 for the design, manufacture and supply of water mist fire suppression systems and installer support

Automist Smartscan Hydra vs Traditional Fire Sprinklers Summary

Category	Feature	Smartscan Hydra	Traditional Fire Sprinkler
Domestic System	Nozzle location	Wall mounting	Ceiling mounting
	Water rate discharge	5.6 litres per minute (90% less water)	60 litres per minute
	Activation method	Intelligent algorithm and IR sensor	Frangible glass bulb
	Meets industry standard fire performance	BS 8458 ✓	BS 9251 ✓
	Third-party validation / certification	LABC Assured ✓ BSI Verified ✓	LPS ✓
	Contractor competence	Plumis Accredited Reseller Installer	Third-party schemes
Optimised to improve survivability	Early warning alarm included (visible & audible annunciation)	Limit smoke damage ✓ Early alarm ✓	✗
	Early activation for several challenging fires (up to 2 minutes before)	Concealed fire ✓ Oil fire ✓ Christmas tree ✓	✗
	Locus of control (the degree to which the homeowner can control the outcome)	Water supply inherently linked to the house supply	Water supply only checked annually by installer
	Water supply resilience	Customisable, drawing from the mains supply	Limited by the size of the tank
Respecting your home	Reduced Legionnaires risk	Dry pipe system ✓	Stagnant water in pipes (and when tank is present)
	Industry's lowest water damage in the event of an activation (based on flow rates)	Reducing the number and size of potential claims ✓	Water escape claim required if the system operates
	Disruption after an activation	Lower reinstatement costs and time, people	Significant water damage
	Manual override	Button on the controller within the property next to the RCD	Maintenance person needs to find the stop valve
	Design aesthetic	Red dot design award winner	Protrudes from the ceiling
Traceability	Clarity of responsibility for activation or cause of fire	Inbuilt temperature event log recorded ✓	Broken glass bulb ✗
	Supporting independent living through data capture and feedback loops	Ability to record the impact and identify risk groups ✓	✗
	Fully tested response to fire	Including the discharge of every nozzle ✓	✗

DESIGN AND SPECIFICATION

Introduction to Design

The Automist design brief must originate from the Client, the Architect, their Main Contractor, or their appointed Fire Engineer as they are the only participants with the knowledge required of the building and occupancy risks, and the overall Fire Safety Plan and the role that the Automist system plays in assuring safety: this responsibility should not be devolved to the Automist Installer.

Specification of the requirements of any residential and domestic active fire suppression system (AFSS) is not a trivial matter. Although standards and guidance provide design solutions for some basic situations, any situation where occupancy, circumstance, or building challenges warrant special consideration, the user is directed to seek the services of a risk expert. It is the responsibility of the Client, or their appointed representative, to consider these, and communicate the results of their deliberations to the Automist designer / installer so that these can be accounted for within the design.

Use and Specification of Automist Smartscan Hydra

Automist Smartscan Hydra is intended to be used as an alternative to domestic/residential fire sprinklers or water mist system as it has been shown to have equivalent or better fire performance when installed as per these guidelines. Where guidance or fire engineering principles indicate that suppression must be deployed in a particular part or parts of a property, Automist Smartscan Hydra must be installed to protect exactly the same areas, whether the purpose is to compensate for means of escape problems or to extend the available time for firefighters to arrive. Installation and design can only be carried out by trained and Authorized Automist Installers.

As per Registered Detail EWS534:

The system is limited in use to those specific situations identified in Table 2 of BS 9991; 2015 'Fire Safety in the design, management and use of residential buildings - code of practice'.

The system must be designed, installed and maintained by a Plumis accredited Installer in accordance with BS 8458: 2015 Fixed Fire Protection Systems - Residential and Domestic Watermist Systems - Code of Practice for Design and Installation and in accordance with the most up to date Plumis Automist Smartscan Hydra Design, Installation, Operation and Maintenance (DIOM) Manual.

Design limits are detailed in BS 8458 2015. These include the limits of application based on fire tests identified in Table 3 of BS 8458 2015 'Fixed Fire Protection Systems - Residential and Domestic Watermist Systems - Code of Practice for Design and Installation'. A comprehensive fire engineering assessment would be needed to justify installations where these limits are exceeded.

For more information on using Automist Smartscan Hydra to meet building regulations – view APPENDIX A.

The system can also be used as an elective fire safety upgrade for enhancing an otherwise code compliant dwelling. In these situations, certain design guidelines can be relaxed depending on the objective (e.g. covering only the hob area when a client wants to use the system to reduce the risk of cooking fires in an otherwise code compliant property) but this objective must be strategy must be documented by the client and confirmed by Plumis in writing or supported by a fire engineering justification.

Room Compatibility

Summary

A single Automist Smartscan Hydra spray head kit can protect an area within a 6m radius from the spray head location. The spray head must therefore have approximate line of sight of any possible fire hazards within this range. The spray head must be positioned at least:

- 1.5m away from any hob
- 1m away from any oven (if in direct line of sight)
- 3m away from any log burners or small fireplaces

Visibility extends radially from each mist head and ends wherever there is an obstruction. The default radius is 90 degrees as shown below, to mitigate the potential of obstructions 1.5m either side of the spray head. Annual commissioning includes a verification that the system is not being obstructed inadvertently. Customers are made aware of the need not to block the view of the spray head through a warning, engraved on the face plate.

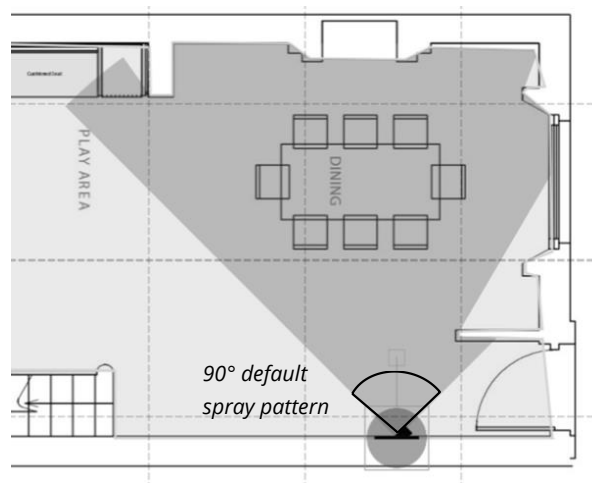


Figure 3: A spray head with a default 90 degree line of sight spray pattern

Note: this is not a complete layout – additional spray heads would be required to complete the scheme.

If an obstruction is equal or more than 1.2m high, it must be regarded as blocking the line of sight from any spray head positioned within 3m and reflected in the layout drawing. For example, bookshelves, wardrobes, large fridges, or vertical radiator covers with actual dimensions. Obstructions higher than 1.5m and wider than 0.3m must be regarded as blocking the line of sight at any distance. This does not relate to a householder deciding to disable the suppression system; full obstruction of the spray head or the creation of de facto room partitions with bookcases are akin to wilfully removing fire doors, decorating over sprinkler heads or removing detectors and are beyond the scope of this recommendation.

The overall objective of a layout plan is to ensure the coverage pattern covers all the square footage within the property. The allowable shadow area (unprotected space) is:

- 1.1 m² per room
- 2.8 m² per dwelling unit (property)

Automist Smartscan Hydra supports up to 6 spray heads per pump and controller pair. If in doubt it is always advisable to add another head to your scheme.

IMPORTANT! Do not install Automist Smartscan Hydra outside Plumis guidelines. Installing Automist Smartscan Hydra outside these guidelines without confirmation in writing from Plumis could make you responsible for deaths or injuries. A layout specification tool is available on the Plumis Partner Site (<https://plumis.co.uk/partner.html>) to help designers meet the Plumis guidelines and follow the Automist Smartscan Hydra specification rules. The layout tool is for design guidance only and does not absolve the designer from full responsibility for all system designs they create and any deviations from the Company's installation guidelines.

As per BS8458 doorways and staircases should be excluded from coverage, provided that the layout of the property is such that the doorway or staircase is likely to remain in use i.e. will not be blocked by a combustible object. Additionally, the designer may wish to picture a doormat having the width of the door or staircase and 0.8m in the other dimension, at the foot and head of every staircase and on both sides of every doorway. Combustible obstructions will not routinely be placed in these zones as they would render a portion of the property inaccessible.

Preferred Positions

When a spray head is in a preferred position, the coverage pattern can be increased by 45 degrees on the effected side because the location mitigates the introduction of obstructions.

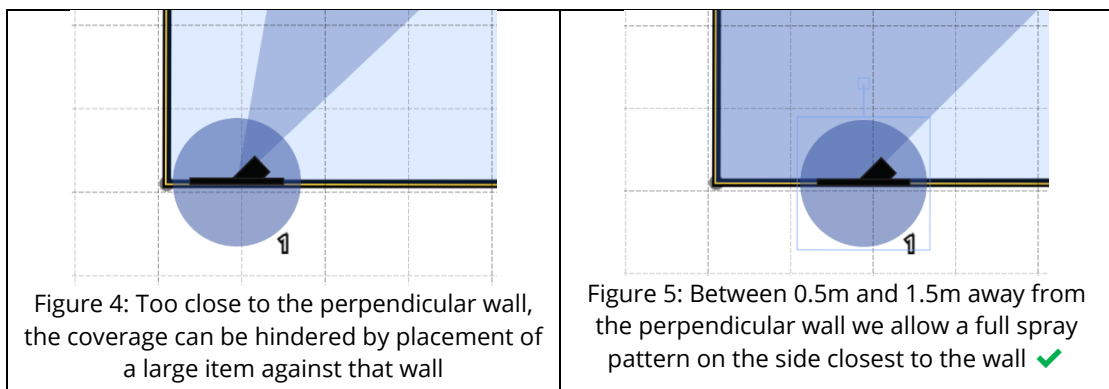
1) Head placement near an internal corner (away from the centre of open walls)

Rationale:

This rule stops the installer from placing the head too close to the internal corner where it could be obstructed along the perpendicular wall. It also aims to prevent the head from being located too far away from the internal corner so a large item can be placed in between the spray head and the corner.

Methodology:

Between 0.5 – 1.5m from an internal corner



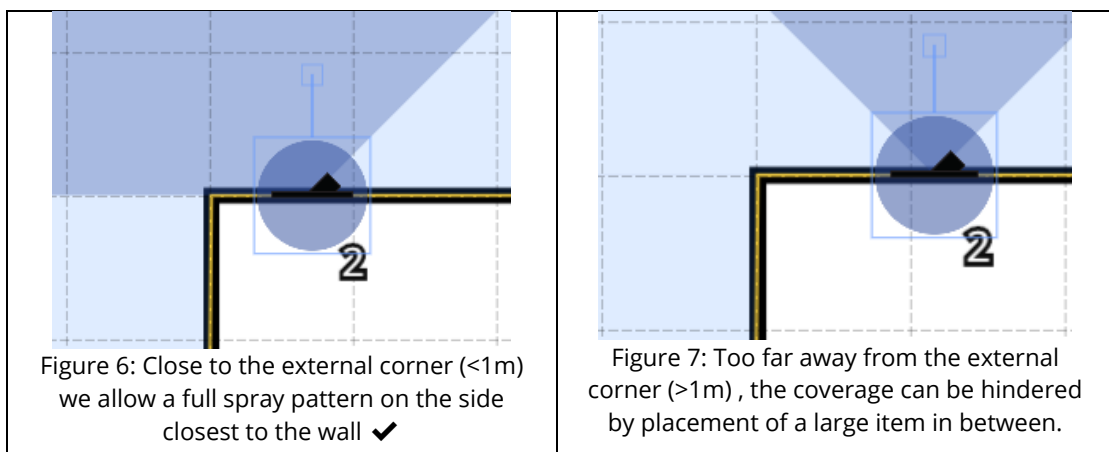
2) Head placement near an external corner (away from the centre of open walls)

Rationale:

This rule stops the installer from placing the head too far away from the external corner (<1m). Any further and the occupant might put something between the edge of the corner and the spray head.

Methodology:

Up to 1m away from the edge of an external corner



3) Head placement near a door (away from the centre of open walls)

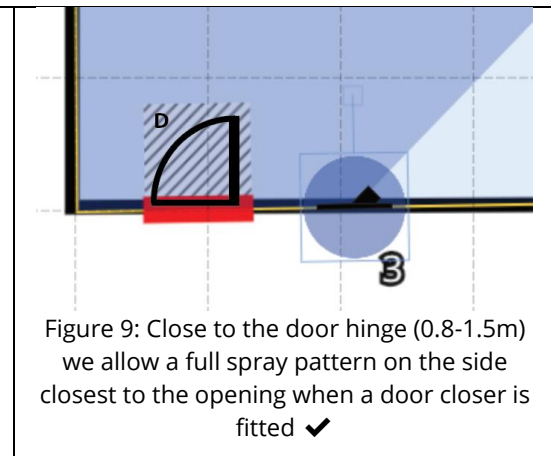
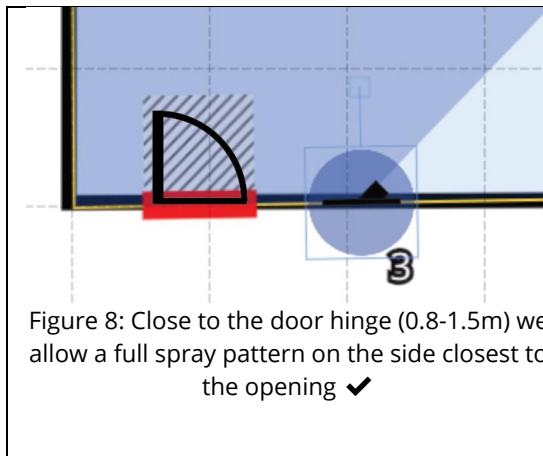
Rationale:

This rule uses the heads proximity to the door opening to prevent obstructions being placed alongside it. It also prevents the head from being too far away from the door hinge (0.8 -1.5m) and is considerate of which way the door swings.

Methodology:

Between 0.8 -1.5m from the door hinge

IMPORTANT! If the head is placed on the side closest to the hinge a door self-closer must be fitted!



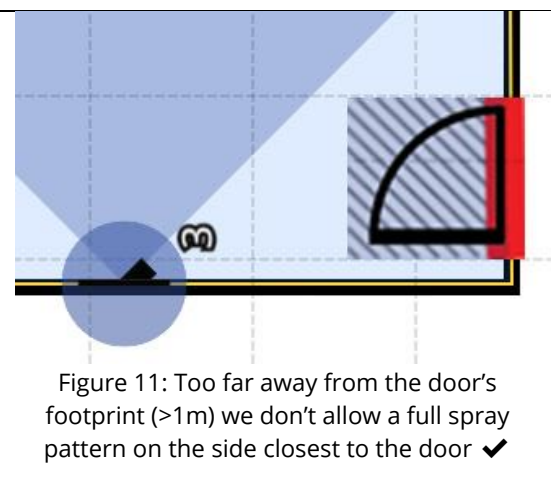
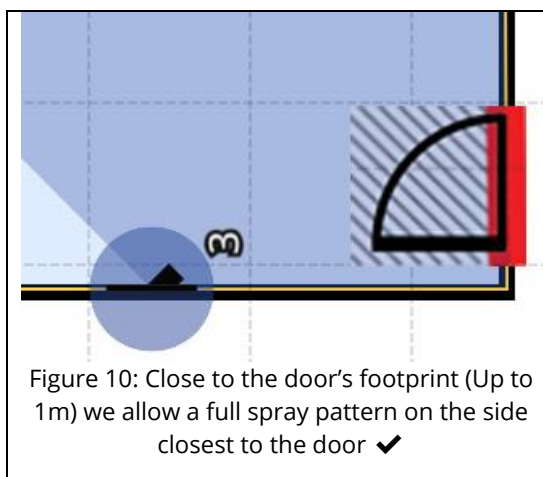
4) Head placement near a door in a corner (away from the centre of open walls)

Rationale:

When mounting the head in a corner on a wall perpendicular to a door, this rule uses the heads proximity to the doors footprint to prevent an obstruction being placed in between. It also prevents the head from being too far away from the door's footprint (>1m).

Methodology:

Up to 1m from the door's footprint when in a corner



5) Head placement near a window (away from the centre of open walls)

Rationale:

This rule uses the heads proximity to the window to prevent obstructions being placed alongside it. It also prevents the spray head from being too far away from the window ($>1\text{m}$) and is considerate of curtains.

Methodology:

Up to 1m from the edge of a window.

At least 0.5m from the edge of the window curtain.

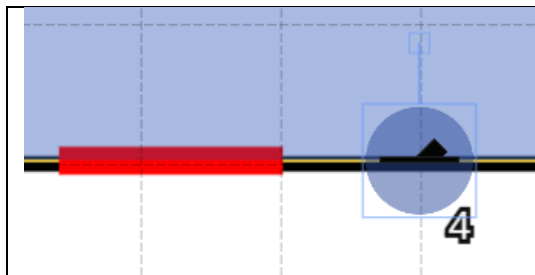


Figure 12: Close to the window opening ($<1\text{m}$) we allow a full spray pattern on the side closest to the opening. At least 0.5m from the edge of the window curtain if present ✓

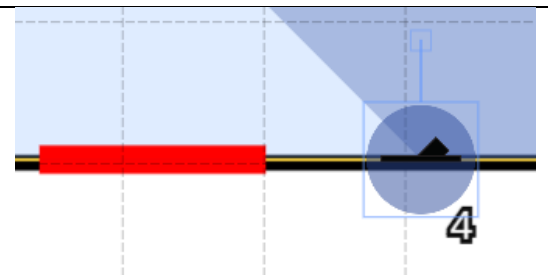


Figure 13: Too far away from the window ($>1\text{m}$), the coverage can be hindered by placement of a large item in between

6) Above a worktop (away from the centre of open walls)

Rationale:

This rule assumes good visibility above a worktop and stops the installer from placing the head too close to the edge of the worktop ($>1.5\text{m}$). Large white goods are often positioned along worktop edges. This is overruled by an internal corner when rules overlap.

Methodology:

Up to 1.5m away from the edge of worktop.

Overruled by a corner when rules overlap.

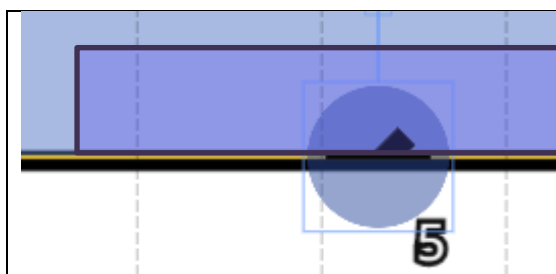


Figure 14: An 180 degree spray pattern can be assumed when above a worktop and more than 1.5m from the edge ✓

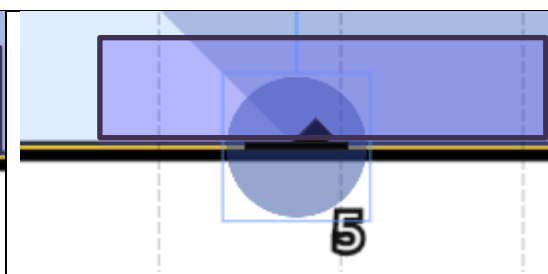


Figure 15: Too close to the edge of the worktop ($<1.5\text{m}$), and the coverage can be hindered by placement of a large item on the edge

7) Built within a cupboard, bookshelf, or joinery (away from the centre of open walls)

Rationale:

This rule assumes good visibility when the spray head is built into the external face of a cupboard, bookshelf, or joinery unit. The design of the unit is as such it would be unusual to put furniture in front of it.

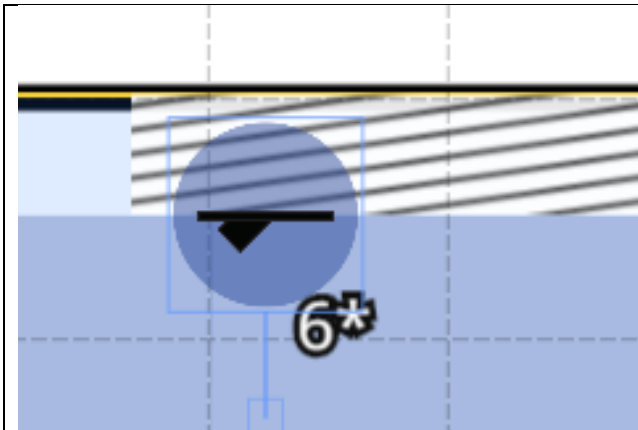


Figure 16: An 180 degree spray pattern can be assumed when the spray head is built into the external face of a bookshelf or joinery unit ✓



Figure 17: Example of a build into the external face of a bookshelf or joinery unit ✓

8) Built into a trunking or a nib/fireplace (away from the centre of open walls)

Rationale:

This rule assumes good visibility when the spray head is built into the middle of a vertical trunk or a nib.

Methodology:

The nib must be at least 0.45m deep and 0.25 – 2m wide. Otherwise the angle is reduced.

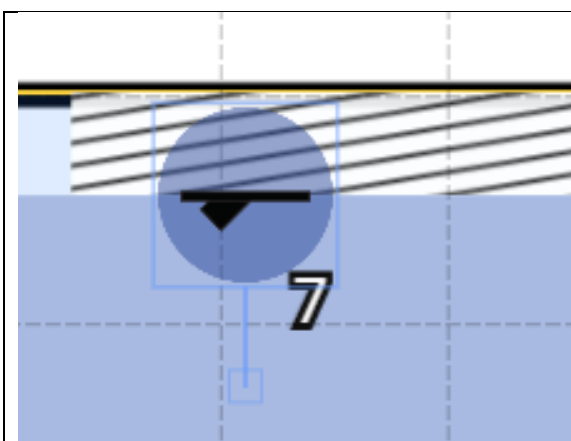


Figure 18: An 180 degree spray pattern can be assumed when the spray head is built into the external face of a nib that is at least 0.45 deep ✓

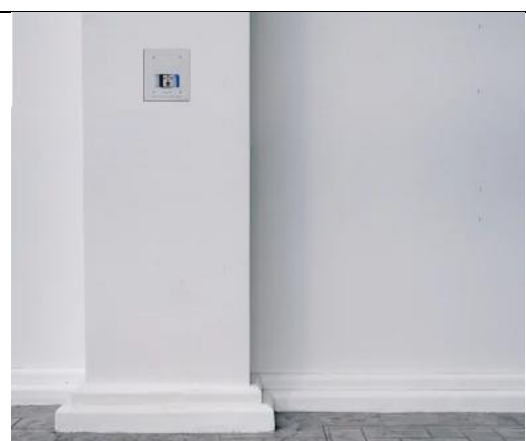


Figure 19: Example of a spray head build into the external face of a nib ✓

9) Between a worktop and a perpendicular wall (away from the centre of open walls)

Rationale:

This rule assumes good visibility for a sprayhead on a perpendicular wall from a worktop and prevents the installer from placing the head too far away from the edge of the worktop (>1.5m).

Methodology:

Up to 1.5m away from the edge of worktop when near to a corner.

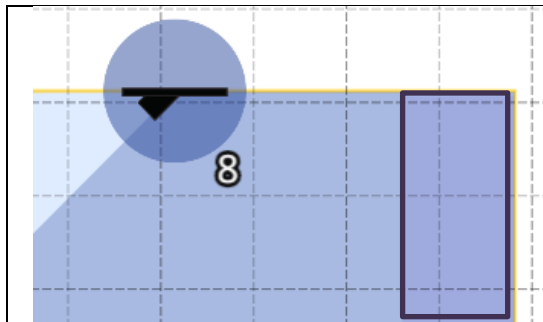


Figure 20: An extra 45 degree spray pattern can be assumed when less than 1.5m from the edge ✓

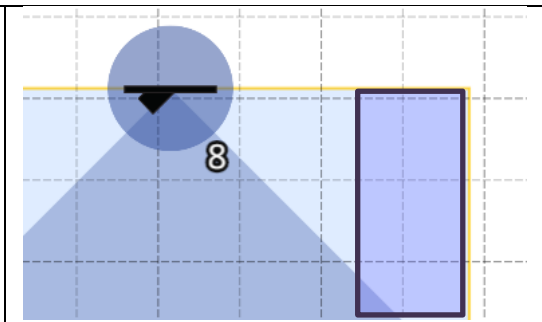


Figure 21: Too far away from the edge of the worktop (>1.5m), and the coverage can be hindered by placement of a large item between the sprayhead and the worktop

10) Two spray heads in the middle of an open wall

Rationale:

This rule assumes good visibility between two spray heads when they are placed less than (<3m) apart.

Methodology:

Up to 3m between two sprayheads on the same wall.

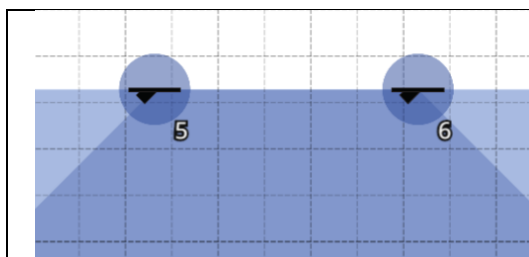


Figure 22: An extra 45 degree spray pattern can be assumed when the sprayheads are less than 3m apart on the same parallel wall ✓

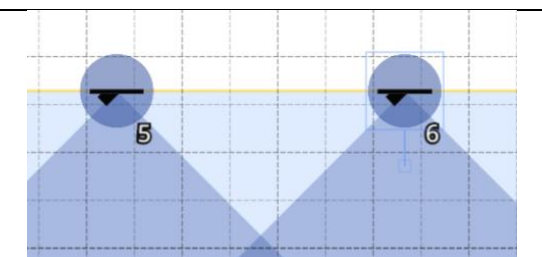


Figure 23: Too far away (>3m), and we are at risk of someone putting an obstruction between them.

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 181 mm (width) and weighs 7.0 kg. Pump must be placed on a flat smooth level surface.
- To mitigate overheating when running for long periods, the pump must 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 0.124m³, that is separated by a fire resisting partition from the mist-protected room(s) that it serves. Alternatively, a flame proof enclosure (G0001_M) can be purchased from Plumis for purpose of protection, to minimise the effect of a fire to the pump when it is in the room it is trying to protect.
 - In a cupboard with volume of at least 0.124m³, 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.
- Additional clearance at the front and the rear of the pump must also be provided to accommodate the connections.
- Enough space to install the controller in accordance with these installation instructions. The controller is 155 mm (height) by 42 mm (depth) by 155 mm (width).
- Ceiling heights are limited to 3.5m following the guidance on BS 8458:2015. Higher ceiling applications of up to 5m are possible if there is no fire loading above 3m but require a written justification from a fire engineer, increased ceiling height increases detector activation time.
- The controller should be positioned near or next to the consumer unit, or if not possible next to the pump, if the pump is located in an area that is: a) in a separate compartment from the protected volume b) not within a basement.
- A 3/4" water supply (connection) with a WRAS 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 at the inlet of the system which can deliver 8 litres per minute flow at a minimum of 1.5 bar (150kPa) and a maximum of 16 bar (1.6 MPa) static pressure. In case that pressure or flow is too low, a priority valve or a booster pump must be used to provide the required flow and pressure.
(Note: the water filter is qualified to maximum 6 bar. Therefore, the PRV (pre-set to 3 bar, maximum 16 bar input) must be installed upstream of water filter as shown in Figure 2). It is responsibility of the installer to ensure the water supply to the Automist pumps is adequate. An outside pipe diameter of less than 28mm is a good indicator that a survey is required.
- A dedicated electrical supply circuit in fire resisting cabling such as FP200. This must be on a C-type breaker, on a RCBO or an RCD protected circuit. The MCB+RCD circuit (C type) or RCBO (C type) circuit must protect only the Automist Smartscan Hydra system and not be incorporated with any other circuit in the property or have any spare ways for future circuits.
- Metal consumer units complying with 18th Edition IET Wiring Regulations to BS 7671 2018; do not require the addition of an over box to meet BS476 Part 22 (1987) and EN1364 (1999).
- **IMPORTANT!** If power cable can encounter parts having a temperature rise exceeding 50°C, the wiring insulation must be protected, for example, by insulating sleeving having an appropriate temperature rating i.e. near boiler or hot water pipes. Operating ambient temperature is above 4°C. Do not install Plumis equipment in location which are likely to drop below this minimum temperature requirement.
- **IMPORTANT!** The maximum allowable data cable length in the system is 80m (from the controller to the pump to the furthest head). It includes the maximum allowable data cable from pump to the controller of 30m plus the maximum data cable length to the furthest head from the pump of 60m.

- Flexible high-pressure hoses must 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.
- **Note:** When installing flexible high-pressure hose behind plasterboard walls, Plumis advises the hose is left free and unconstrained. This is because mounting the hose in a conduit or narrow groove within joists makes it more susceptible to perforation when subsequent building works are carried out.
- **IMPORTANT!** Before installation ensure the hoses are in line with Plumis guidelines. See Appendix C for high pressure hose specification. **The maximum total length of high-pressure hoses is 60m. The maximum allowable hose with a nominal inner diameter of 1/4" is 20m, and maximum allowable hose with a nominal inner diameter of 5/16" is 40m when used in combination. The two hose types can be used in combination if the total length does not exceed the 60m limit (20m of 1/4" + 40m of 5/16"). If a 5/16" only installation is made, the maximum hose length is of 50m.**

Spray Head Placement

The Automist Smartscan Hydra Head is designed to be affixed into a rectangular hole (89+/-2mm wide x 117mm high) that is at least 57mm deep when using the “old work” clips provided.

If you are installing Smartscan Hydra using a Back box, the hole dimensions are as following: 94mm wide x 119mm high and 60mm deep.

IMPORTANT! The Automist Smartscan Hydra head must be located where the spray pattern will not be obstructed and 1500mm horizontal clearance provided around the spray head.



Figure 13: Keep 1.5m horizontal clearance around the spray head

The Spray head height is different depending on where it is placed:

a) Kitchen

The kitchen is the one room in a standard dwelling with a fixed layout/furniture. The standard spray head height is placed at a lower height in this room for better targeting of the significant fire risks; white goods and the hob/cooker in a room assuming a standard worktops height of 90cm high.

a. Above a worktop

Provided that the worktop and cupboard heights are suitable, the need to access a kitchen worktop looks to ensure its freedom from unplanned obstructions. The head must be located at least 10cm from the bottom of the upper cupboard (so the spray pattern is not affected by the cupboard above), and as high as possible above a worktop up to 40cm (to help is clear any potential worktop objects).

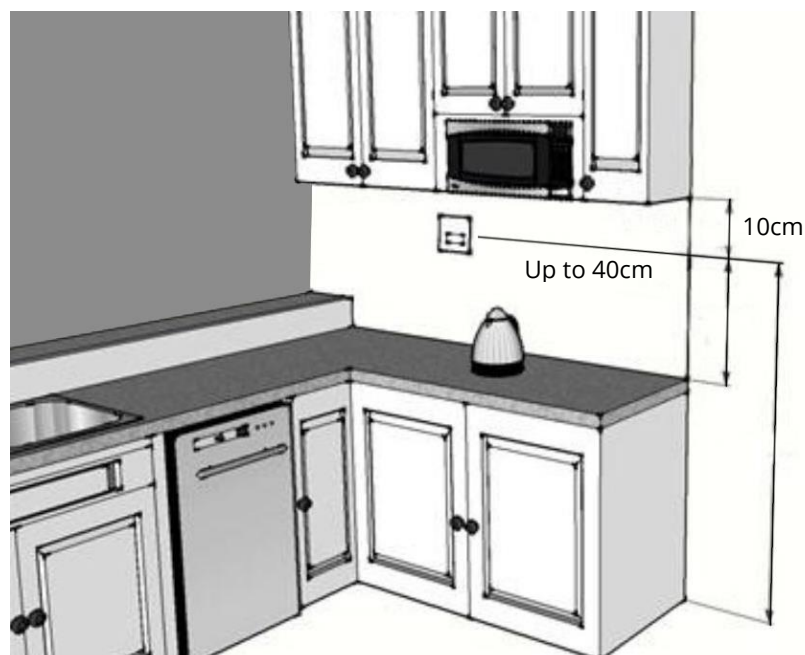


Figure 13: Automist Smartscan Hydra head positioned above kitchen worktop

b. Not above a worktop

For installation in the kitchen area, the spray head must be installed at a height of 1200 - 1450mm. Locate the head at the lowest possible height within that range.

b) Everywhere else

The spray head must be installed at a height of 1400 - 1450mm from the finish floor level in non-kitchen area.

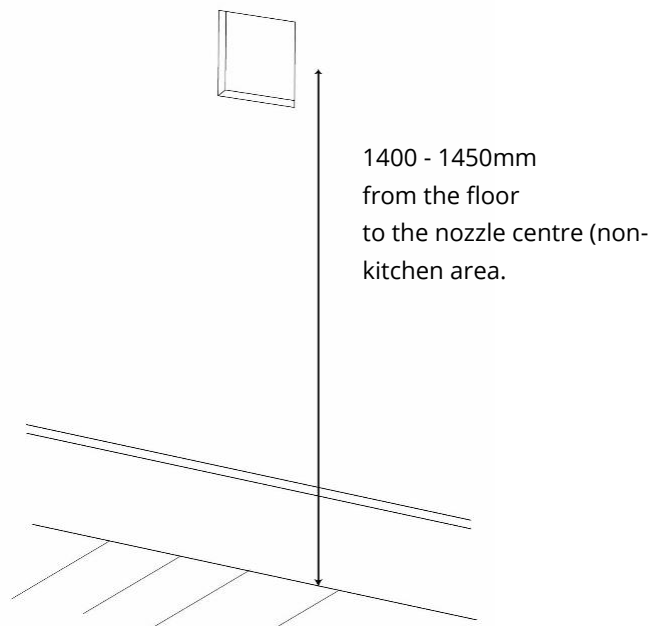


Figure 24: Automist Smartscan Hydra spray head mounting hole (non-kitchen area)

Detection System

Automist Smartscan Hydra's reliability is partially dependent on the detection system. The system is designed to be triggered by a correctly installed and positioned Plumis wireless alarm or a compatible hardwired detector (see page 32).

- In its default setting, Automist Smartscan Hydra is programmed to run continuously for 30 minutes on activation (with a one second pause after 10 seconds and 30 seconds as a safety feature). This is designed to prevent interruption of mist even if an alarm is damaged by extended exposure to fire.
- Placement of detectors must 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 smoke detectors and gives guidance on unusual ceiling types.
- Automist Smartscan Hydra's use of alarm(s) or detector(s) 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 detector (or alarm):

- Directly over a sink, cooker, stove, fireplace, or oven
- Do not locate a detector within 1.5m of any cooking appliance (as per the manufacturer's recommendation)
- Next to a door or window that would be affected by drafts i.e. extractor fan or air vent

- Outside
- In or below a cupboard
- Where air flow would be obstructed by curtains or furniture
- Where dirt or dust could collect or block the sensor
- Where it could be knocked, damaged, or inadvertently removed
- 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
- 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 (e.g. bathrooms)
- On surfaces subject to significant vibration

IMPORTANT! This version of Automist Smartscan Hydra may not function correctly if activated by a detector not sanctioned (see page 31) by Plumis. Use with other types of detection could lead to death or injury.

Ensure Automist Smartscan Hydra is only paired to the desired detector(s) in the volume it protects. You can check these associations using the product's ALARM TEST MODE (see page 52). In this mode, alarms may be triggered which will cause their linked heads to perform two scans and then return to an idle state. Ensure that Automist Smartscan Hydra has been successfully returned to the System OK state following this test, and that the water supply remains open, and that nozzles are unobstructed.

INSTALLER GUIDELINES

Installation Procedure

- A) First Fix - Preparing the site
- B) Second Fix - Installing the controller
- C) Second Fix - Installing the spray head(s)
- D) Second Fix - Connecting the water supply
- E) Commissioning

Notice!

Equipment you will need:

During first fix:

- A suitable tool for tightening BSP hoses, e.g. wrenches
- A set of screwdrivers including Torx bits
- A suitable electric drill
- Electrical cable
- PTFE tape

During second fix:

- A pressure gauge kit (CM01) (available from Plumis)
- A commissioning kit (CM06) (available from Plumis)
- A suitable tool for tightening BSP hoses, e.g. wrenches
- A set of screwdrivers including Torx bits
- A suitable electric drill
- Electrical cable
- Bicycle pump or air compressor with Schrader valve connector
- PTFE tape
- Torque Screwdriver: Duratool DT000230 (CPC)
- Screwdriver Bits: Tacklife HPSB1A 58-in-1 precision screwdriver bits (Amazon)
- Heat/smoke gun
- Hose parts and crimping tool (if making hoses on site)

A) First Fix - Preparing the site

IMPORTANT! Connecting the system to the mains requires a competent electrician with 18th Edition Electrical Qualifications. The Automist Smartscan Hydra circuit must be clearly labelled (a sticker is provided for this purpose). Automist Smartscan Hydra requires an independent 230V A.C. / 50Hz electrical supply, not shared with other unrelated devices. The Automist Smartscan Hydra system, fire detection and alarm system may use this circuit, which must remain powered in the event of a fire. Power to Automist Smartscan Hydra must be provided via an unswitched fused connection unit (FCU). Automist Smartscan Hydra must be supplied using FP200 cable or better, ideally inside conduit or protected 50mm deep within a wall, and with MCB+RCD (C type) or RCBO (C type) 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 Smartscan Hydra. Typically, on a split-load board, Automist Smartscan Hydra must 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) with no spare ways for future use. When prepay meters are present an additional prepay meter should be added specifically for Automist and housed within a lock box. The prepay meter for Automist can then be charged as part of the maintenance cycle.

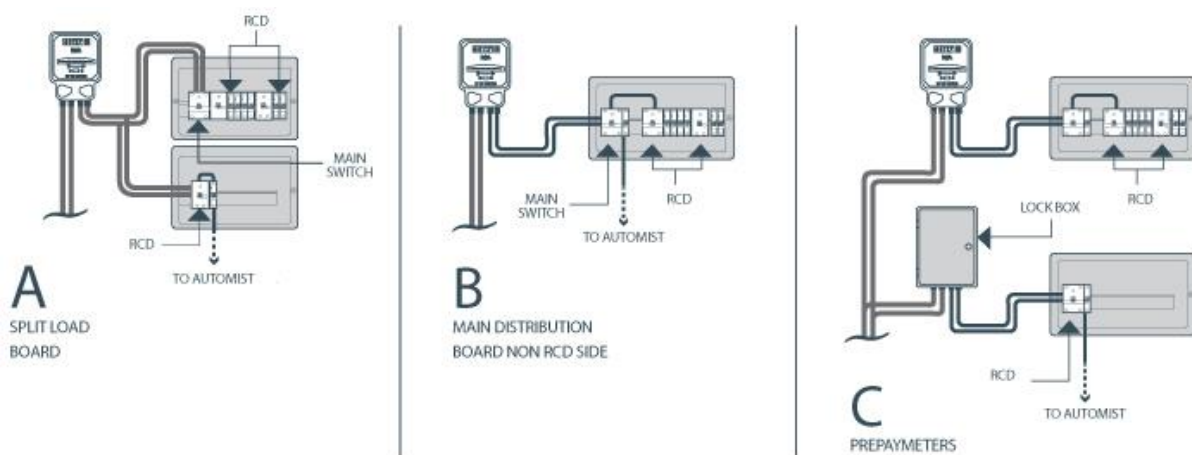


Figure 25: Electrical supply variations

WARNING! Switch off electricity at the mains before working on existing circuits.

The Automist Smartscan Hydra unit presents an inductive motor load and therefore only type “C” breakers are suitable. Because Automist Smartscan Hydra is often used for life safety applications, installers must add a suitable safety margin to the MCB ratings. The circuit supplying an Automist Smartscan Hydra unit must/should be protected by a C type breaker (‘C10’ or ‘C16’ for one unit (per pump), or ‘C20’ / ‘C32’ for two Automist Smartscan Hydra units). This must be on a C-type breaker, on an RCBO or an RCD protected circuit. **The RCD/RCBO circuit must protect only the Automist Smartscan Hydra system and not be incorporated with any other circuit in the property.** If the consumer unit is in the protected area it must be protected by an electrical cover. However, if the consumer unit is in the protected area and has a metal enclosure complying with 18th Edition IET Wiring Regulations to BS 7671 2018; it does not require the addition of an over box to meet BS476 Part 22 (1987) and EN1364 (1999). If the electrical installation is required to follow BS 8458, the stipulations of that standard must be adopted; in particular it may require the use of fuses rather than MCBs as well as a “separately fused connection taken after the meter and from the supply side of the domestic or residential fuse box”.

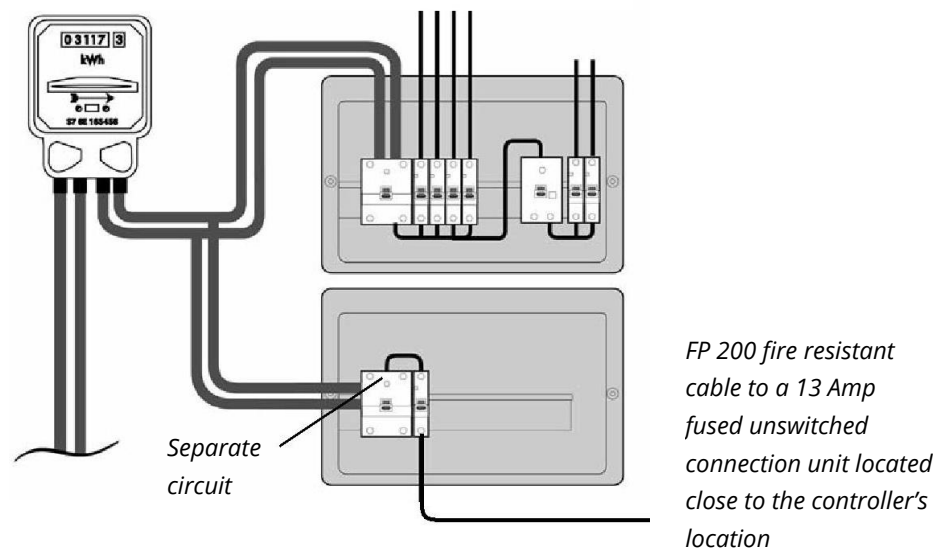


Figure 26: Split load board power supply

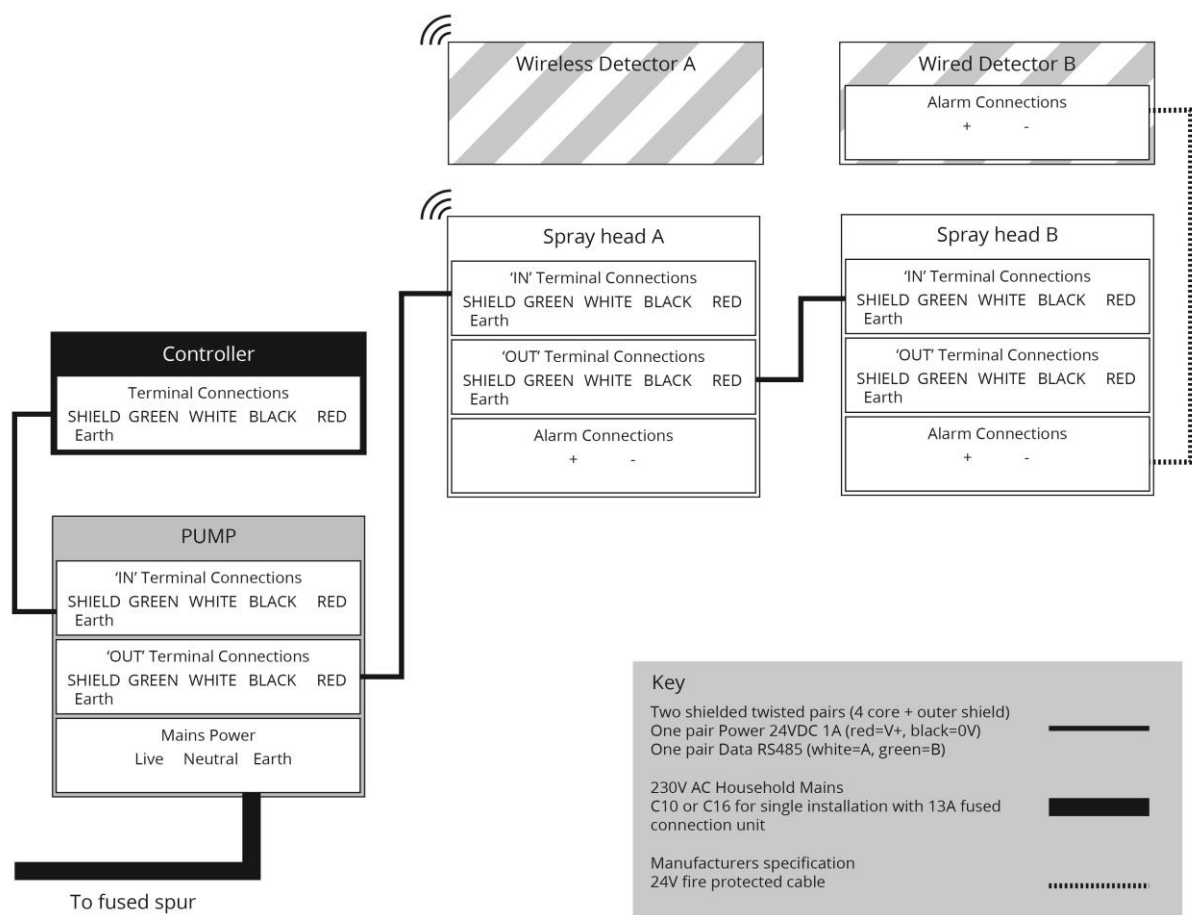


Figure 27: Electrical Connection Diagram - 2 spray head system with a wireless and wired detector

The intention of the first fix is to set up and verify the water supply and power supply to the pump and install the high-pressure hose(s), data cables and the electrical cables. This must be completed following the layout plan which has been preapproved with the Authority Having Jurisdiction, so the installation and commissioning can be completed with the system set up as it would be in service.

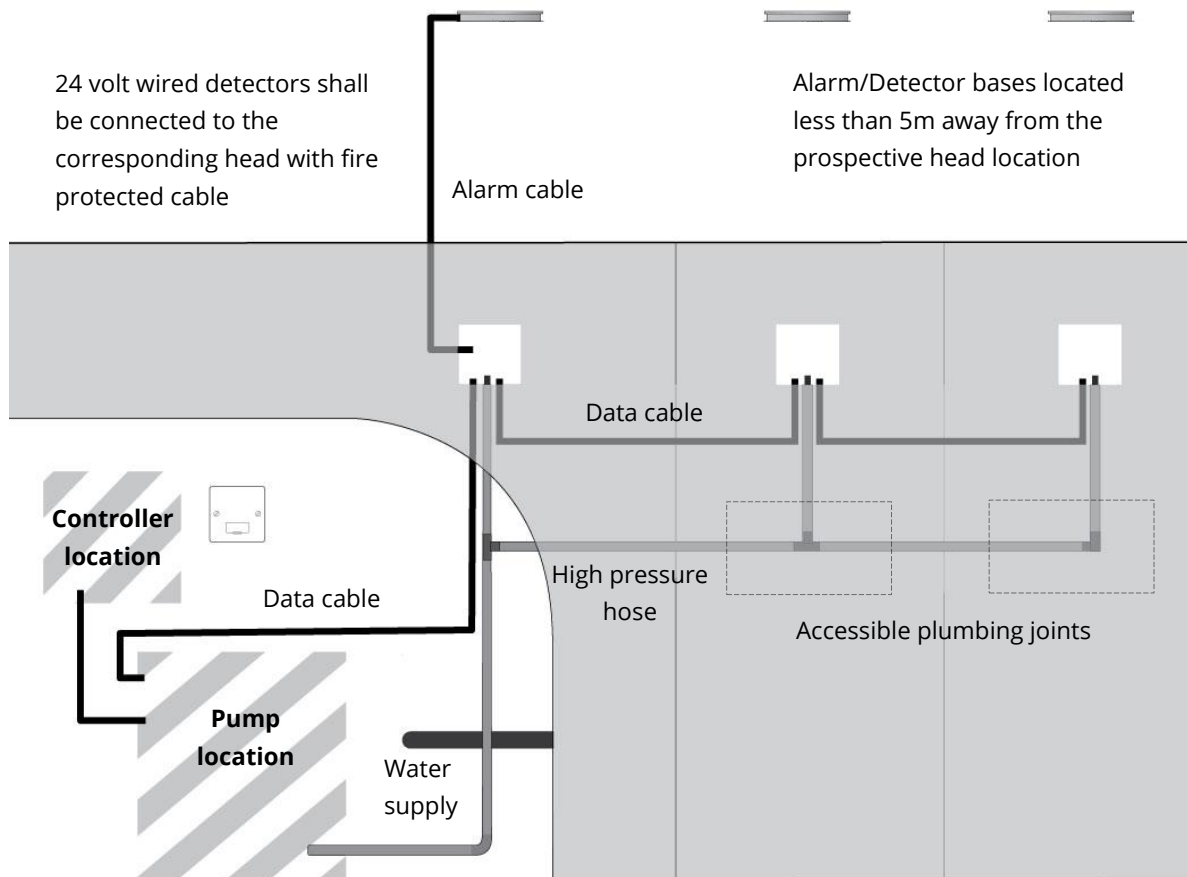


Figure 28: First Fix Setup

Install a 3/4" water supply (connection) with a WRAS approved isolation valve positioned so that the connection point will not be obstructed when the pump is installed. The cold-water supply must deliver adequate flow and pressure. Otherwise a priority valve or a booster pump may need to be used. An outside pipe diameter of less than 28mm is a good indicator that a survey is required. Verification of the flow and pressure provided by the specific 3/4" water supply pipe is required. Photographs are recommended with the measuring equipment in place:

- Minimum 8 litres per minute flow
- 1.5 – 6 bar pressure static water pressure

IMPORTANT! Before installation ensure the hoses are in line with Plumis guidelines. See Appendix C for high pressure hose specification. The maximum total length of high-pressure hoses is 60 m. The maximum allowable hose with a nominal diameter of 1/4" is 20m, and maximum allowable hose with a nominal diameter of 5/16" is 40m when the two hose types are used in combination, with the total length not exceeding the 60m limit. A 5/16" only installation may have a maximum length of 50m.

High pressure hoses can be connected in a star or a daisy chain configuration. See Appendix C for high pressure fitting specification. Any plumbing joint or fittings **must be steel**, e.g. t-connectors, elbows, must be housed in an accessible area so they can be checked for leaks during the commissioning procedure.

IMPORTANT! Hoses must be closed with caps to prevent building products from contaminating the water path until the second fix.

It is recommended to carry out the following leak checks on the high-pressure hoses / pipes after installation,

Pneumatic Test

High pressure hoses / pipes must be tested pneumatically to a pressure of not less than 2.5 bar for not less than 24 h. Any leakage that results in a loss of pressure greater than 0.15 bar for the 24 h must be corrected.

Hydrostatic Test

This test must be carried out immediately after the pneumatic test, or as soon afterwards as climatic conditions permit. High pressure hoses / pipes must be hydrostatically tested for not less than 2 h, to a pressure of 1.5 times the maximum pressure to which the system will be subjected. For the Automist system, it is recommended to use 165 bar as test pressure (1.5×110 bar). If the system fails to maintain the test pressure, the fault (such as permanent distortion, rupture or leakage) must be found, corrected and the test repeated. Users must ensure all air is removed from the hoses / pipes network before undertaking a hydrostatic test. Following testing hoses / pipes must be drained and dried to remove any moisture in the network.

It is recommended that the hose is installed 40mm from the surface of the wall.

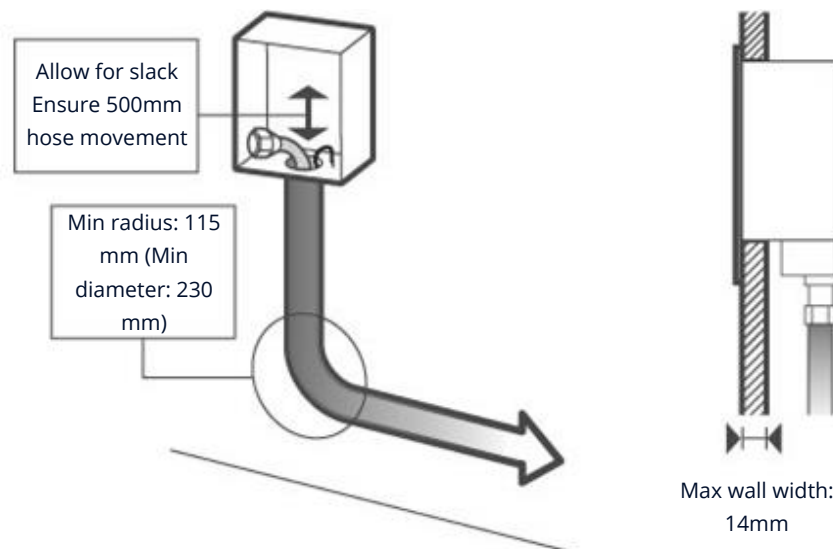


Figure 29: Mounting the Back Box

IMPORTANT! Steel elbows must be used if minimum radius cannot be met (see Appendix C for elbow specification).

IMPORTANT! When installing into solid walls, solid metal conduit must be installed to allow for movement of the hose (500m slack) for future servicing and replacement of the hose. Solid metal protection must also be used when the hose is restricted of lateral movement. This is necessary because when the hose is not free to move it is more susceptible to being punctured accidentally.

IMPORTANT! So fire separating is effective, every joint, or imperfection of fit, or opening to allow services to pass through the element, should be adequately protected by sealing or firestopping so that the fire resistance of the element is not impaired.

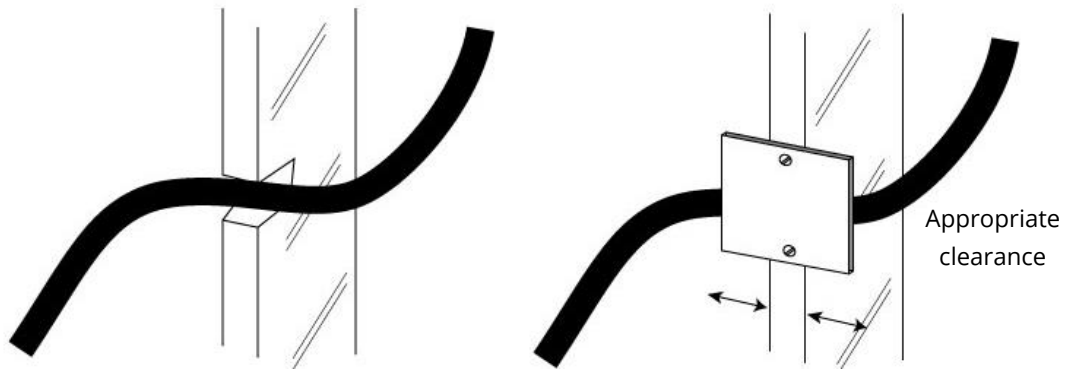


Figure 30: Example of mechanical protection within a joist

The spray heads must be set up in a daisy chain configuration (see page 35) and **data cables must be labelled IN and OUT**, so they can be correctly installed when connecting the spray heads during the second fix. It is recommended that the data cable(s), where possible, is loosely bound to the high-pressure hose. Ferrules must be crimped onto the bare wires in preparation to connecting them to the relevant terminals.

Plumis wireless multi-criteria alarm

IMPORTANT! – These alarms must only be installed by a competent engineer/technician. Dust caps must remain (be placed) on the alarm up until the occupant moves in.

IMPORTANT! – The maximum quantity of alarms in one Hydra system is 16, which is the sum of wireless and wired detectors. The total number of wired detectors in a system must be 6 or less! The number of wired detectors in a series chain must be 3 or less! All the wired alarms in one series will be considered as “one alarm” in the system. Dust caps must remain (be placed) on the detector up until the occupant moves in.

Once a suitable location is found, mount the alarm as follows:

1. Refer to the diagram below and install the mounting base on the ceiling or on the wall (if permitted for the application) using the screw location as required. Use the two screws and anchors provided. Manoeuvre the base so the screws are at the elbow of the screw slots and secure.
2. Fit the alarm inside the base aligning it over the base as shown (alarm alignment notch must be slightly offset from mounting base tamper release tab), then turn the detector in a clockwise direction until it clicks into place.

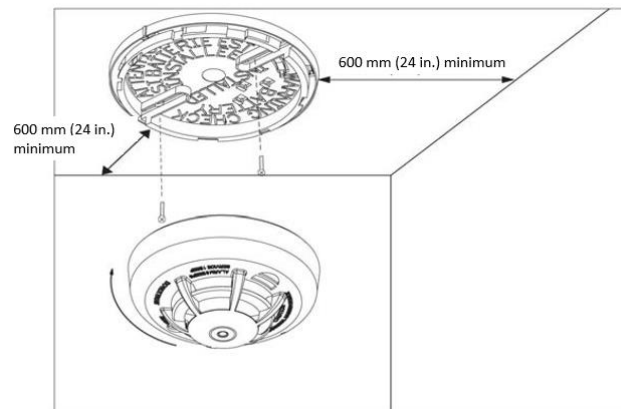


Figure 31a: Mounting the detector

Compatible wired detector

IMPORTANT! Always follow the manufacturer's instructions when installing wired detectors. A 24-volt wired connection must be made between the detector and the spray head location using fire protected cable. ONLY following wired detectors are compatible with the Automist system:

- Apollo Orbis ORB-OH-13001-APO Multisensor detector.
<https://www.apollo-fire.co.uk/products/range/orbis/smoke-heat-detectors/orb-oh-13001-apollo-orbis-multisensor-detector>
- Apollo 65 Series A1R (Only Heat).
<https://www.safelincs.co.uk/apollo-series-65-a1r-heat-detector/>
An Apollo heat detector should only be chosen over and above a multisensory detector if it is not possible to use a multisensory detector as the type of substance encounter causes frequent false alarms. Use of heat detectors for code compliance should be verified with Plumis as this type of alarm is slower to react than multisensory detectors.
- Hochiki Photoelectric Heat & Smoke Detector - SLR-24H
http://www.hochiki.com.tw/uploads/1/1/3/9/11398774/slr-24h_08-2011.pdf

ONLY the following wired detector bases are compatible with the Automist system:

- Apollo Orbis TimeSaver Base ORB-MB-00001-APO.
<https://www.apollo-fire.co.uk/products/range/orbis/mounting-bases/orb-mb-00001-apollo-orbis-timesaver-base-with-continuity-switch>
- Apollo Orbis TimeSaver LX Base ORB-MB-00002-APO.
<https://www.apollo-fire.co.uk/products/range/orbis/mounting-bases/orb-mb-00002-apollo-orbis-timesaver-base-lx-without-continuity-switch>

IMPORTANT! For wired detector, you must fit an End of Line (EOL) resistor across the terminals specified by manufacturer. For example, OUT+ and COM- terminals in the detector base of Apollo Orbis ORB-OH-13001-APO Multisensor detector. Resistors must be 4.7K ohm, 0.5W, 1%, such as Multicomp MF50 4K7. EOL resistor must only be added to the last detector in the chain.

<http://uk.farnell.com/multicomp/mf50-4k7/resistor-0-5w-1-4k7/dp/9340629>

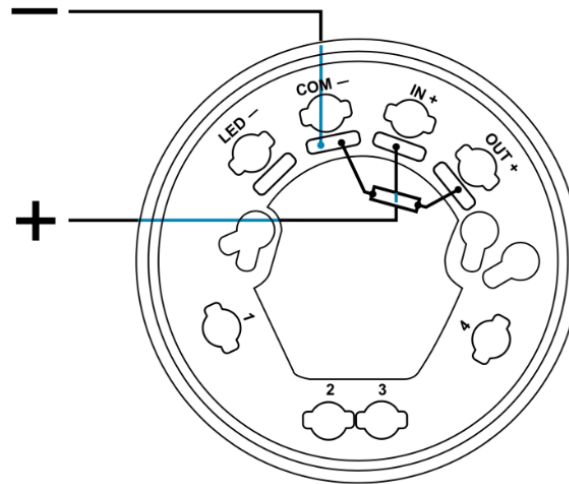


Figure 13b: Mounting the resistor on single wired detector

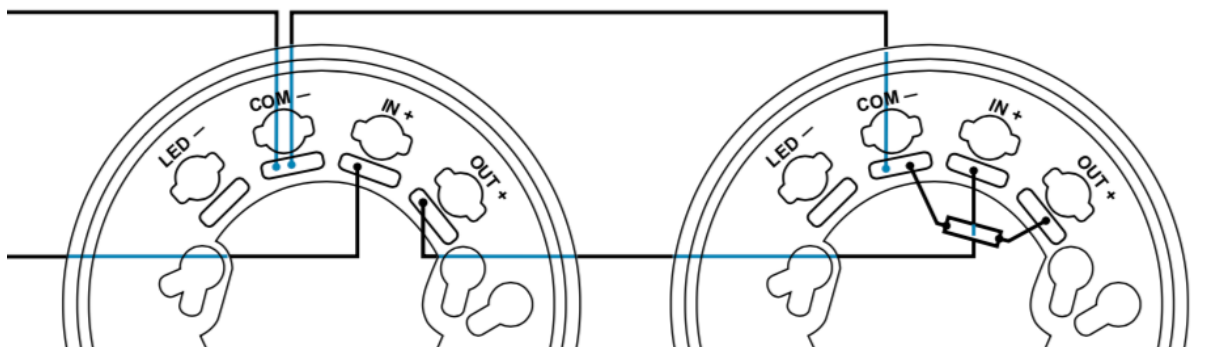


Figure 13c: Mounting the resistor on wired detectors in chain

Power Loss Alarm

It is possible to fit a power loss alarm to the system, to alert the user if power is cut. Because the alarm is installed to detect a loss of power, it must be installed on a separate spur of the same circuit as the Automist system.

Many options for such an alarm are available and Plumis recommends the purchase of an inexpensive alarm like the one in the following link:

LED Power Cut Failure Outage Alert Automatic Alarm Warning Siren Indicator for Incubator Egg Hatching Breeding (ASIN - B01GE3NDB4)

https://www.amazon.co.uk/gp/product/B01GE3NDB4/ref=pd_cp_107_1?ie=UTF8&psc=1&refRID=REA5Y9F0RC54QWVN72WM

B) Second Fix - Installing the controller

WARNING! The controller must 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.

Mount the controller in the selected location. It is recommended to install the controller next to the main distribution board or RCD. The maximum allowable data cable length from the pump to the controller is 30m. Take care to avoid any cables and pipes that may be buried in the walls.

IMPORTANT! Connecting the power requires a suitably qualified & competent person. Switch off electricity at the mains before working on existing circuits. Take care not to touch the PCB. Do not over tighten the terminals.

Carefully Remove the lid of the controller enclosure and fix the back plate which holds the electronic printed circuit boards (PCBs). There is a ribbon connector between the front and back enclosure panels, which can be gently slid off from its pin header connector.

Feed the wires through the gland provided on the bottom of the controller, or through the rear entry hole on the same surface as where the PCB is mounted. The gland also provides strain relief. Grommets are provided and must be placed to fill the cable entry holes which you do not use.

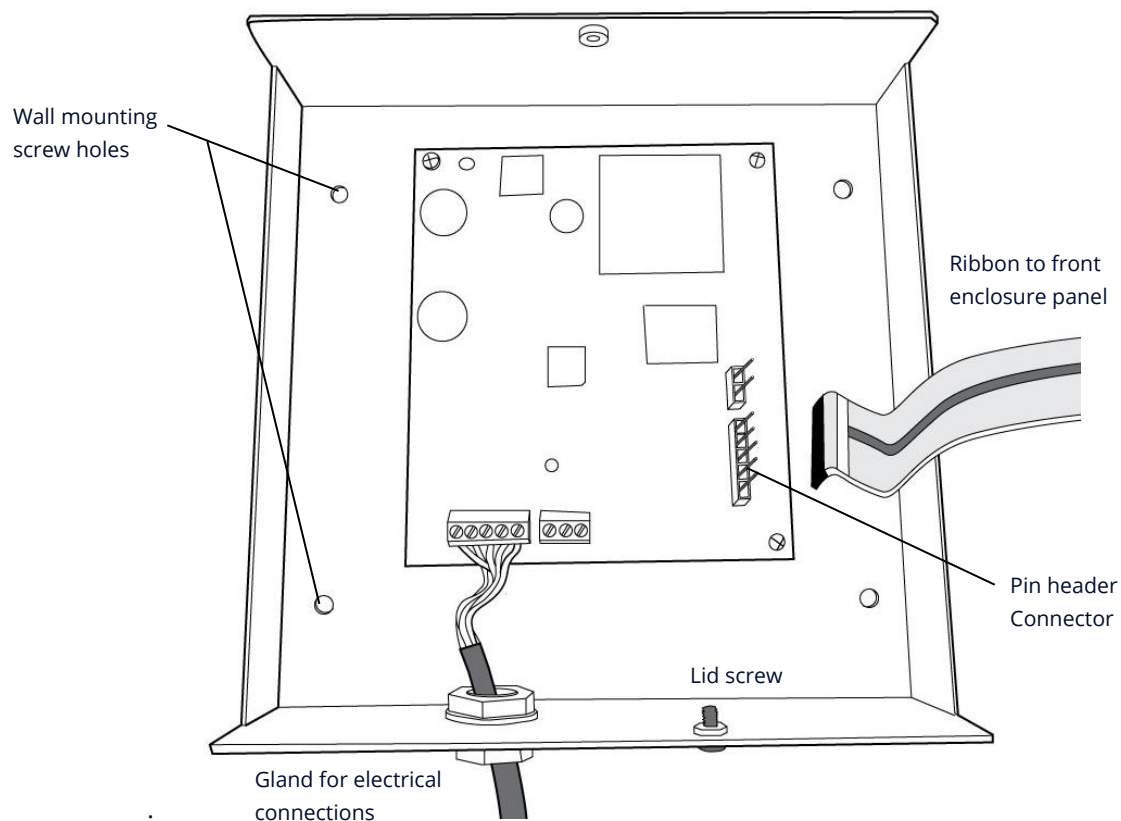


Figure 32: Connecting the controller

Connect the wiring to the terminals as per the drawing (Figure 14). Use a torque screwdriver on the following setting: minimum 0.22Nm, maximum 0.25Nm. (Note: the green connector block has Phoenix Contact MKDS 1/5-3,5). **(see Appendix D for how to make cable connection)**

Required tools:

- Torque Screwdriver: Duratool DT000230 (CPC)
- Screwdriver Set: Tacklife HPSB1A 58-in-1 precision screwdriver bits (Amazon)

Reconnect the ribbon to the pin header connector. Place the control unit enclosure lid over the base and fix the lid.

C) Second Fix - Installing the spray head(s) and pump

Place the **first spray head** loosely in the mounting hole and connect the data cable between the terminals on the pump to the incoming terminals on the spray head.

Tighten the wires of the Smartscan Hydra Head Cable into the screw terminals. Use a torque screwdriver on the following setting: minimum 0.22Nm, maximum 0.25Nm (Note: the green connector block has Phoenix Contact MKDS 1/5-3,5). **(see Appendix D for how to make cable connection)**

IMPORTANT! Tighten the cable strain relief gland to ensure that any movement of the cable does not result in movement or tension at the terminal block. **Do not over tighten the terminals.**

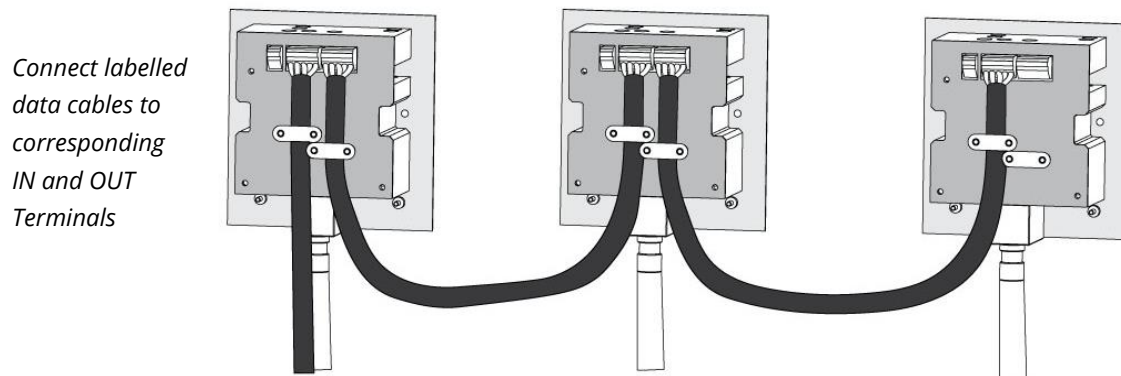


Figure 33: Spray head daisy chain connection

If you are using a hardwired alarm, connect the detector to the spray head with a 24v fire protected cable.

IMPORTANT! Do not use PTFE at the head connection. If you believe any containments or construction products have entered the hose flush it through with water before connecting it to the sprayhead.

Connect the ¼" BSP high pressure hose to the spray head assembly

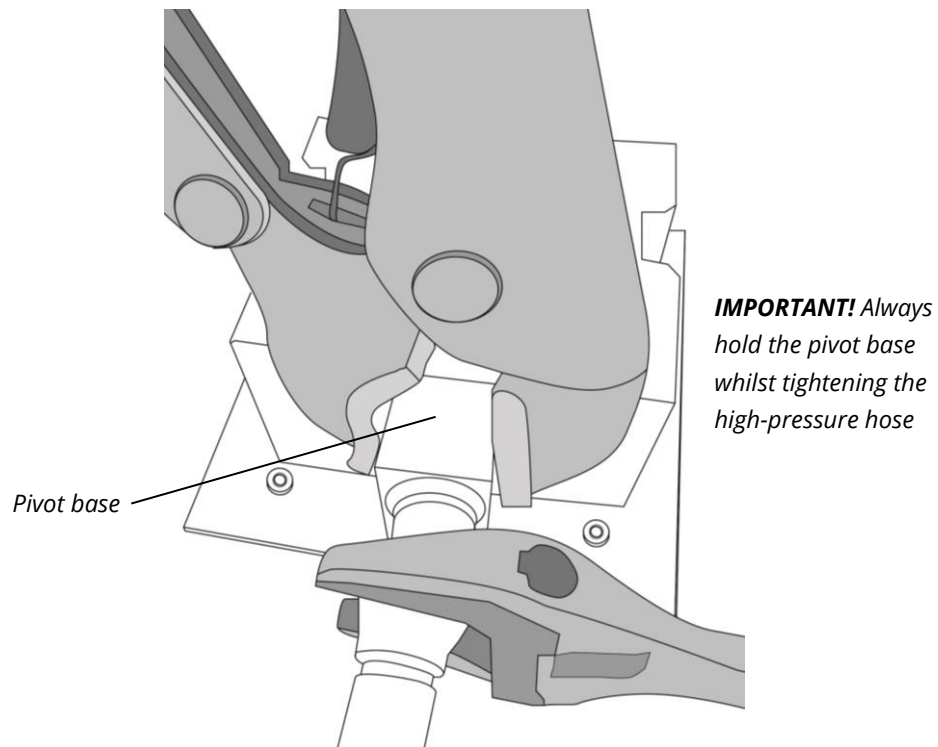


Figure 34: Spray head water path connection

Position the pump unit as closely as possible to the mains water supply pipes. Open the front panel and connect the wiring to the terminals as per the drawing (see page 28). The large gland near the top of the unit is used to supply the power.

IMPORTANT! Tighten the cable strain relief glands to ensure that any movement of the cable does not result in movement or tension at the terminal block. Do not over tighten the terminals. Use a torque screwdriver on the following setting: minimum 0.5Nm, maximum 0.6Nm. (Note: the green connector block has Phoenix Contact SMKDSN 1, 5/ 5-5, 08). **(see Appendix D for how to make cable connection)**

Once you have successfully connected the controller to the pump, connect the pump to the first spray head and to the mains. Once you have finished with the wiring close the front panel, now you are ready to test the first head.

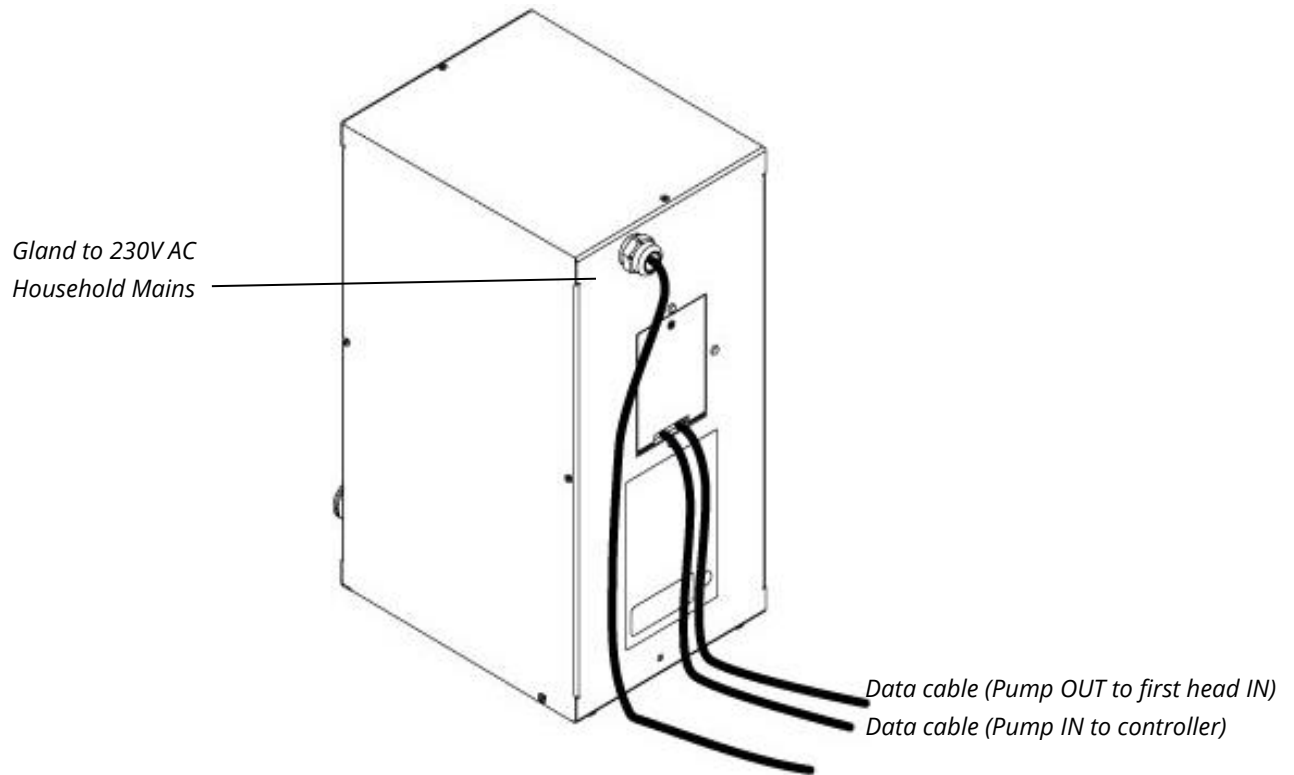


Figure 35: The pump front panel

IMPORTANT! Ensure the live connections are correctly installed and not exposed before switching on the system for the first time. If you have configured the wiring correctly for the first head, the controller will chirp and display solid yellow. All connected heads will light yellow. This indicates that the wiring is correct, and the units are in an uncommissioned state.

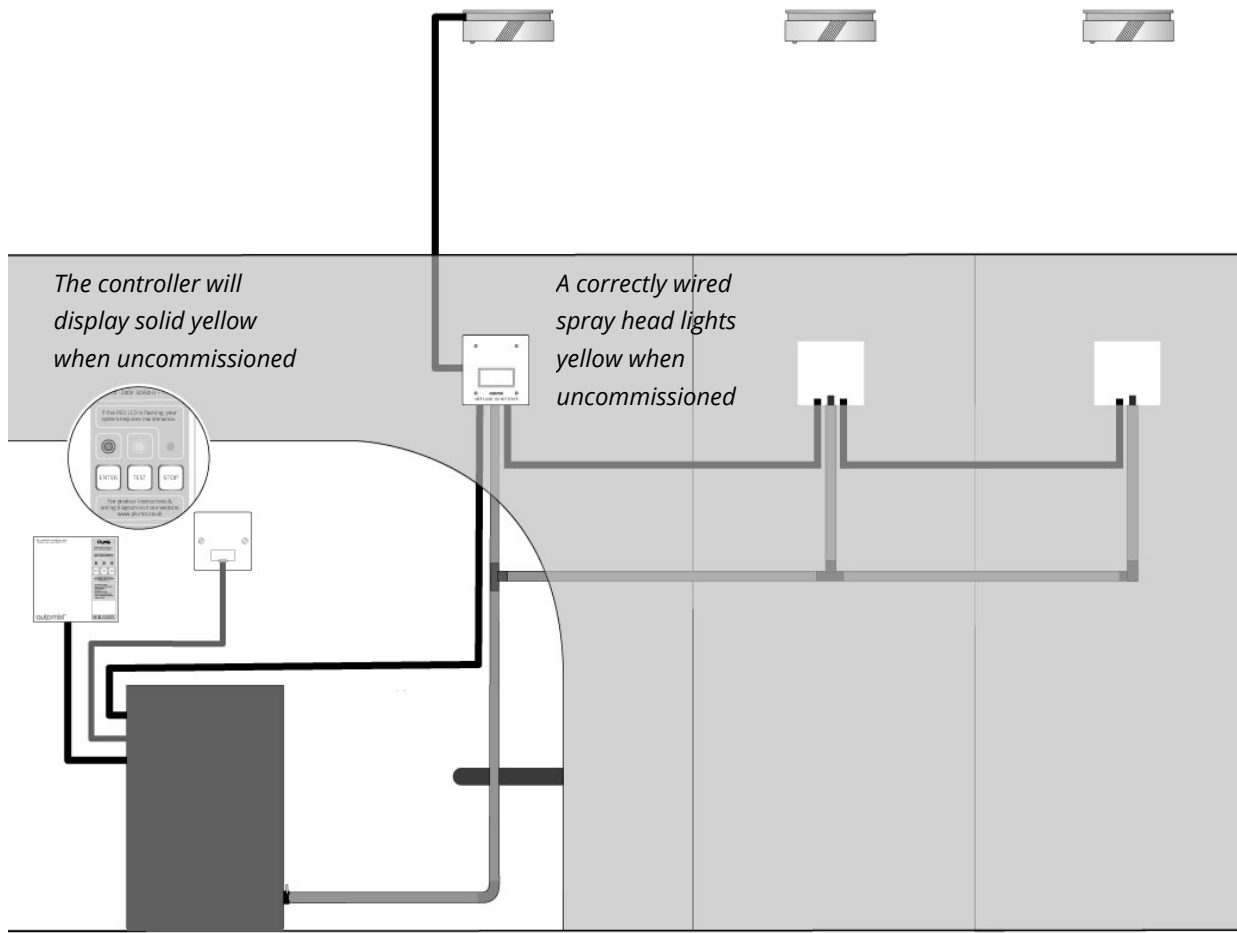


Figure 36: Testing the initial setup

Power down the system and connect the next head. Repeat the process above for each additional head. Installing the system in this way will ensure you can identify if one of the heads has been wired incorrectly. If you are confident that your system is wired correct you can wire all the heads at the same time and verify them at the end.

D) Second Fix - Connecting the Water Supply

IMPORTANT! The flow to a fire suppression device must be ensured when using a domestic water supply. A survey must be carried out to ensure that there will be water supply available for the Automist pumps and the normal domestic supply in its worst condition. Otherwise a priority valve or a booster pump must be used to provide the required flow and pressure. It is responsibility of the installer to verify the water supply to the Automist pumps complies to the requirement (See Section "Installation Requirements" in this document).

The water supply must comply as follows:

- A check valve must be installed to ensure back flow protection to the mains water (supplied in kit).
- PRV must be installed to protect the system from overpressure or water hammer.
- See Figure 2 for installation sequence.
- WRAS approved isolation valves are required so that the Automist Smartscan Hydra system can be shut off from the water main. All such valves must be labelled with the included warranty void anti-tamper sticker. This enables clear identification of any tampering with the water valve (note: spare stickers can be ordered from Plumis)

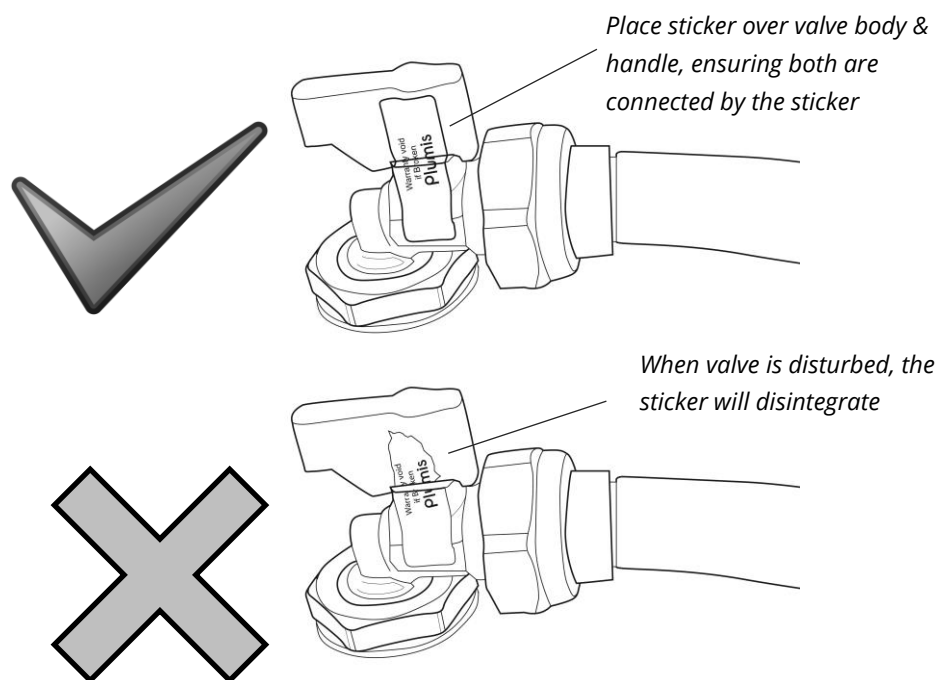


Figure 37: Water valve tamper sticker

- Priority valves are not normally required but must be used in circumstances where the water supply may otherwise be inadequate.

IMPORTANT! If new pipe has been fitted, remember to flush out any contaminants before connecting to Automist Smartscan Hydra, to avoid clogging the nozzle.

IMPORTANT! Before planning and installation, it is recommended to carry out a study on hose routing regarding minimum hose length for the connecting multiple heads to the Automist pump. See Appendix C

for high pressure hose specification. Connect the high-pressure hose from the assembled head to the outlet on the pump.

High pressure hoses left exposed in the protected volume, particularly at height, could be compromised in a fire. Hoses must therefore be encased in the wall whenever possible. Where possible, hoses must 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.

A Quick Connect with Test Point and locking pin are supplied to connect the high-pressure side of the pump to the spray head. A small O-ring is included and already attached to the Quick Connect with Test Point. The locking pin retains the quick connector in the pump outlet but can be easily removed, for example to drain water from the high-pressure hose. The Test Point adaptor is required as part of the commissioning procedure (see page 42).

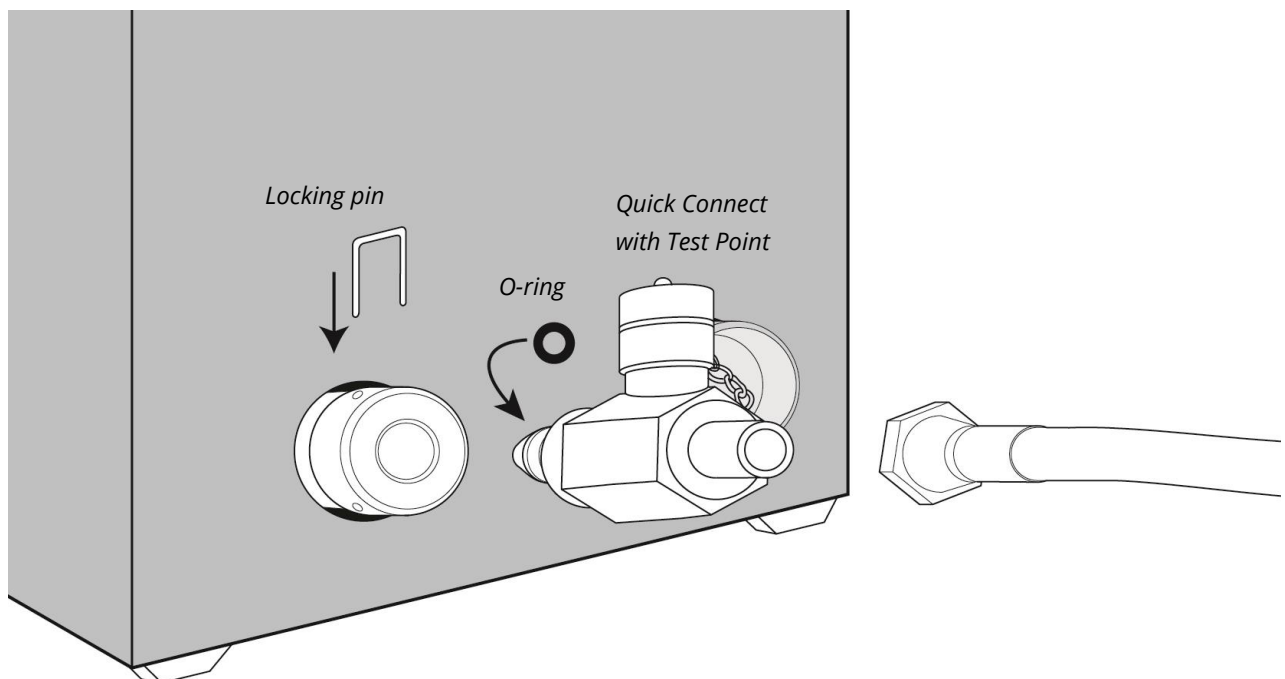


Figure 38: Connecting the Quick Test Point

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.

The Automist Smartscan Hydra pump unit must 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.

Assembly Order

3. 3/4" BSP water supply
 - i. WRAS approved isolation valve
 - ii. Non return valve
 - iii. PRV (PTFE on both sides for sealing)
 - iv. BSP 3/4" nipple
 - v. Washer
 - vi. Filter
 - vi. Washer

- vii. Hose
 - v. Washer
4. Pump

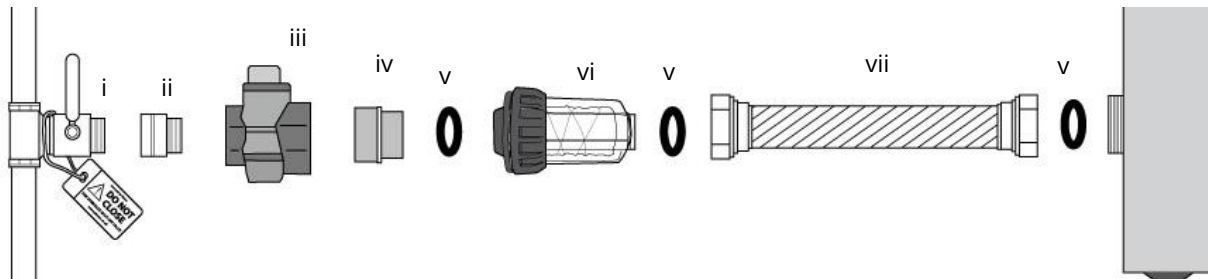


Figure 39: Automist Smartscan Hydra Water Assembly Order

IMPORTANT! Do not install the filter directly to the pump. You must maintain the Assembly order as described above! The new hose-sets supplied with the appliance are to be used and that old hose-sets must not be reused. To enable a consistent pressure and seal for all low-pressure water interface washers, the correct amount of torque must 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

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

IMPORTANT! Switch on the water supply. Check and verify that there is no leak at any component between the main water supply port and pump inlet port when the water supply is switched on. Switch on & off any water tap nearby several times to simulate water hammer effect and verify that there is no leak at any component.

E) Commissioning

The Automist Smartscan Hydra Controls

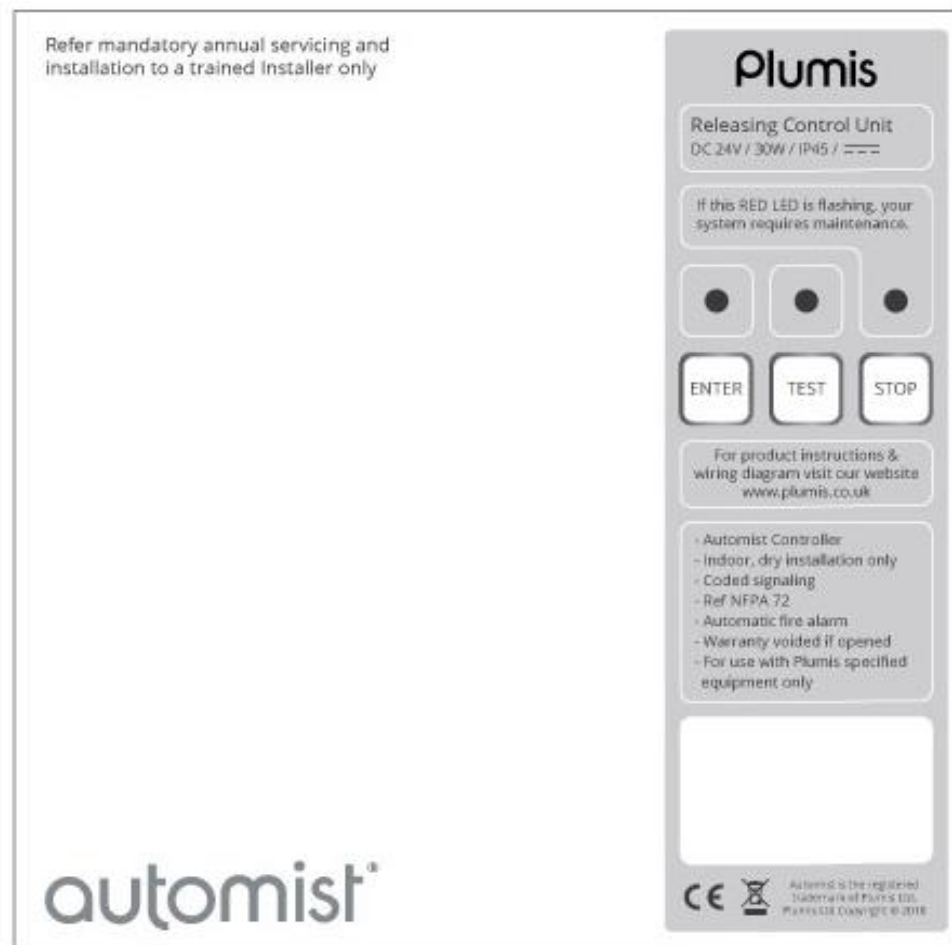


Figure 40 : The Automist Controller

STOP Button: Pressing the STOP button during a fire condition will stop the Automist Smartscan Hydra pump for 2 minutes. After activation, the system will alarm for 12 minutes. During this time if at the end of the first 2 minutes (during the last 10 minutes), an alarm triggers the system will reactivate. This mode was created to address the fire returning in the 12 minutes after the occupant believes it has been extinguished. During this time do not switch off the power or it will reset the 12-minute timer. If the alarm condition has ended, Automist Smartscan Hydra will return to an uncommissioned state and requires service. The customer will contact the Accredited Installer after an activation (see page 57).

In error conditions, pressing the STOP button temporarily silences the error sounds for 12 hours.

In the SYSTEM OK stand-by, pressing and holding the TEST button may be used to enter ALARM TEST MODE. The YELLOW LED will then start flashing – this indicates that ALARM TEST MODE is activated. In this mode you have 15 minutes to press the test button on a wireless alarm, or trigger a wired alarm with heat or smoke, causing the heads paired to said alarm to begin scanning (2 scans will be performed) and flashing red and yellow. ALARM TEST MODE is deactivated by pushing the ENTER or STOP button; this will be confirmed by the GREEN LED returning to constantly lit. Note: Testing the alarms outside of this mode by pushing the button on the wireless alarm will make it beep and the Automist system will do nothing.

GREEN AND YELLOW FLASHING: Indicate an ALARM condition.

RED FLASHING: Indicates a fault where the flashes indicate the error code. Please refer to the troubleshooting guide. N.B. When Automist Smartscan Hydra is powered up for the first time the YELLOW LED will remain solid to indicate the system has not been commissioned.

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

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 place, new alarms are installed, or maintenance work occurs which could affect the system.
- Commissioning must be performed annually by an Accredited Automist Smartscan Hydra Installer.

Commissioning must only take place when the system is in its 'ready for service' state.

IMPORTANT! The controller lid must be screwed closed when performing this procedure.

When Automist Smartscan Hydra is powered up for the first time the YELLOW LED will remain solid to indicate that the system has not been commissioned. Commissioning is a simple programmed procedure which allows Automist Smartscan Hydra to be tested. During commissioning, the pump runs for 60 seconds and the output pressure and water flow are monitored.

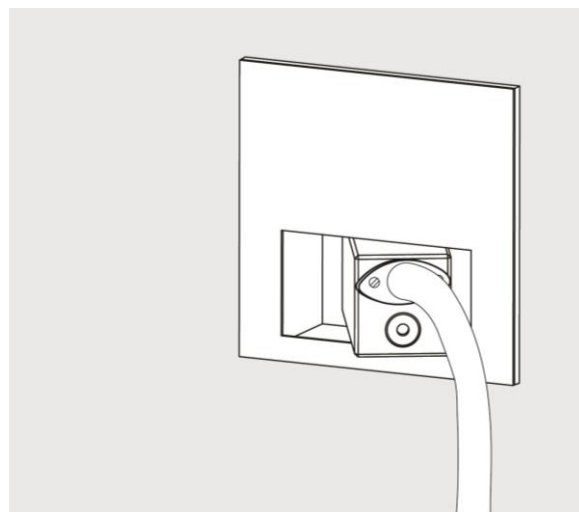


Figure 41: The spray head connected to the commissioning tool

Use the Automist Smartscan Hydra commissioning tool during the procedure to prevent mist being sprayed into the room. The spray nozzle and the screws holes to affix it are only exposed during the commissioning procedure. Use the provided screws and rubber gasket to fasten the tool in place and put a bucket with an approximate 6lt level mark) under the hose during the test procedure.

Commissioning Procedure

A manual commissioning form (printable A4 2 pager) from the Partner Site must be used to capture all the key information about your installation (see APPENDIX H on page 93). This record can be used to input the information into the digital commissioning form online.

Uncommissioned state - Press and hold the TEST and ENTER buttons for 10 seconds to enter commissioning mode. You can only enter commissioning mode within 60 mins of system power on, this is to avoid unwanted uncommissioning.

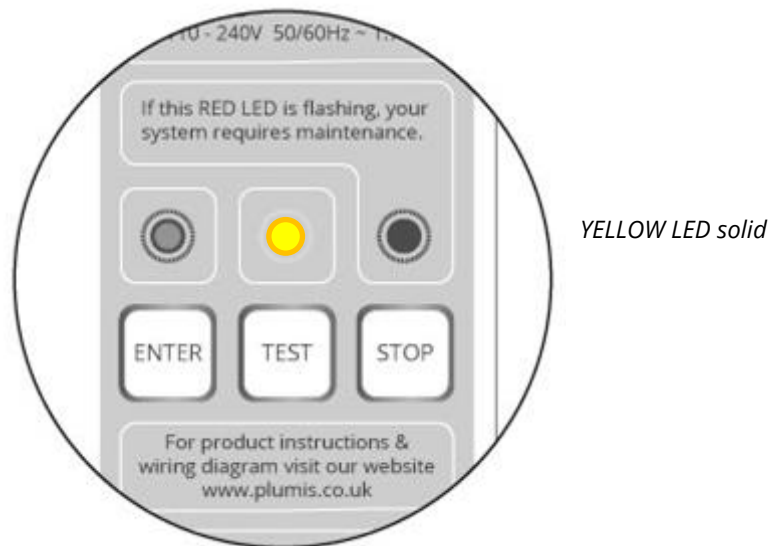


Figure 42: Uncommissioned state

1. **Commissioning address state** – The single flash of the GREEN LED on the controller indicates commission process one. The number of flashes of the YELLOW LED on the controller indicate the number of addressed heads. Press the spray heads to address and unaddress them, a pulsing yellow spray head is unaddressed, and a solid green head is addressed. Long press TEST for 10 seconds to clear the commissioning, if required. Press ENTER on the controller to go to the next stage. Short hold STOP to go back to the previous state, if required.

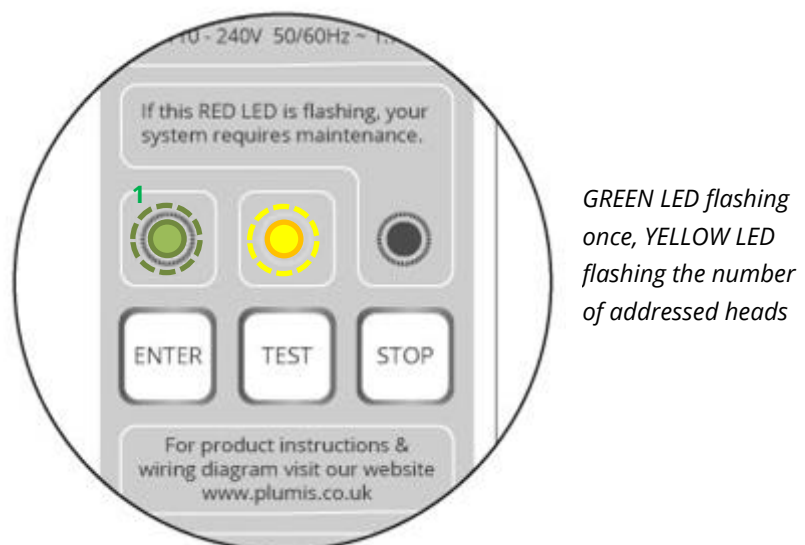


Figure 43: Commissioning mode – commissioning address state

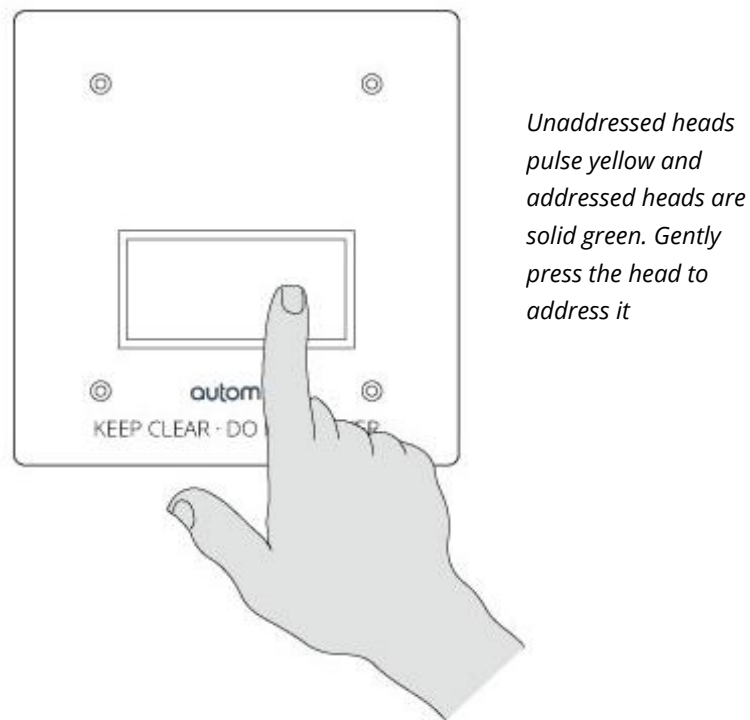


Figure 44: Gently press the outside surface of the spray head with your finger to address it

2. **Commissioning alarm state** – The two flashes of the GREEN LED on the controller indicates commission process two. The spray heads will remain SOLID yellow pending alarm selection. Press the button on a wireless alarm or use a heat gun on a wired alarm to produce an alarm signal. All the unbound spray heads will turn red, while paired spray heads will turn green. Gently press the spray heads to bind and unbind them to the selected alarm, where the GREEN pulses indicate number of paired heads to the selected alarm. Press TEST to complete commissioning for the selected alarm. Repeat the process for each of the alarms. Press ENTER on the controller to go to the next stage only when all the alarms are paired. Short hold STOP to go back to the previous state, if required.
Note: When pairing spray heads to multiple wired alarm in series, only the alarm at the end of the series must be triggered at alarm commissioning state. But the rest of the alarm(s) in this series must be tested with “Alarm Test Mode” after commissioning.

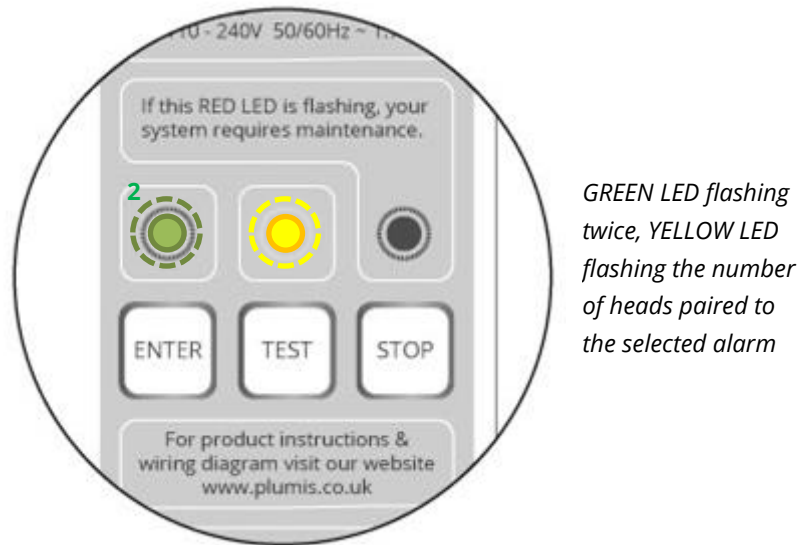


Figure 45: Commissioning mode – commissioning alarm state

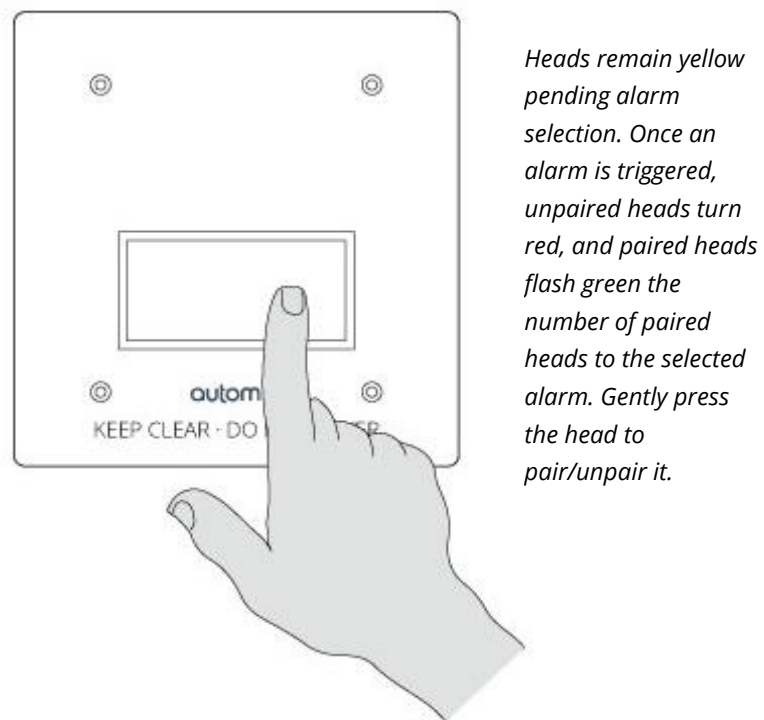


Figure 46: Gently press the outside surface of the spray head with your finger to pair it

3. **Commissioning flow state** – The three flashes of the GREEN LED on the controller indicates commission process three.

IMPORTANT! Always select the lowest spray head and nearest to the pump first for flow testing first before progressively moving higher and further away from the pump. This considers the most effective way to drain the hoses.

IMPORTANT! During flow test and draining process, small amount of water will possibly come out of the drain hole on top of the sprayhead's main body block (drain hole not visible as covered by servo motor shaft). Check all spray heads during each flow test or draining step. Dry the parts if water is visible.

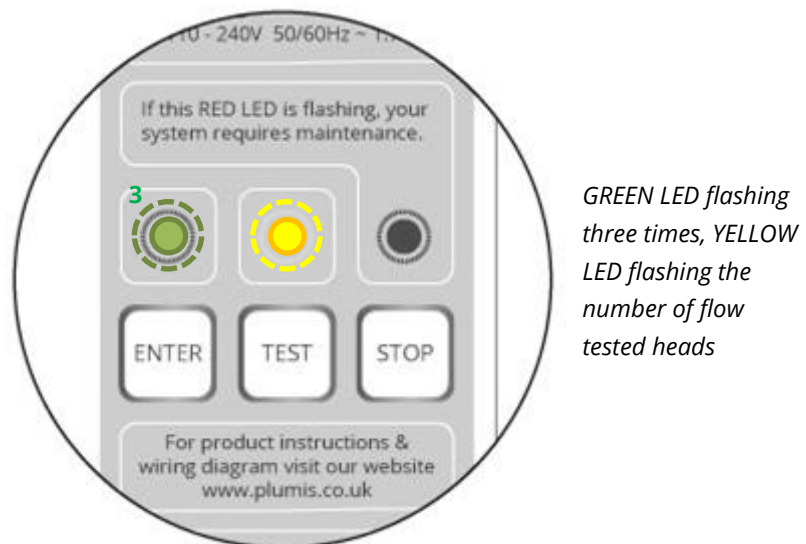


Figure 47: Commissioning mode – commissioning flow state

The spray heads will glow red and lock pending head selection. Press the first spray head and initiate a scan test. The head will scan once and point to the warmest position that it observes which must be your hand. It will then rest in an approximately 90-degree position and turn solid yellow if scan test was successful. If unsuccessful, the head will remain solid red and return to the locked position. Gently push the head to retry the scan test. If it still fails, turn off the system, and visibly check the sensor is clean of any dust or water. The sensor must see a temperature difference during the scan for the test to pass.

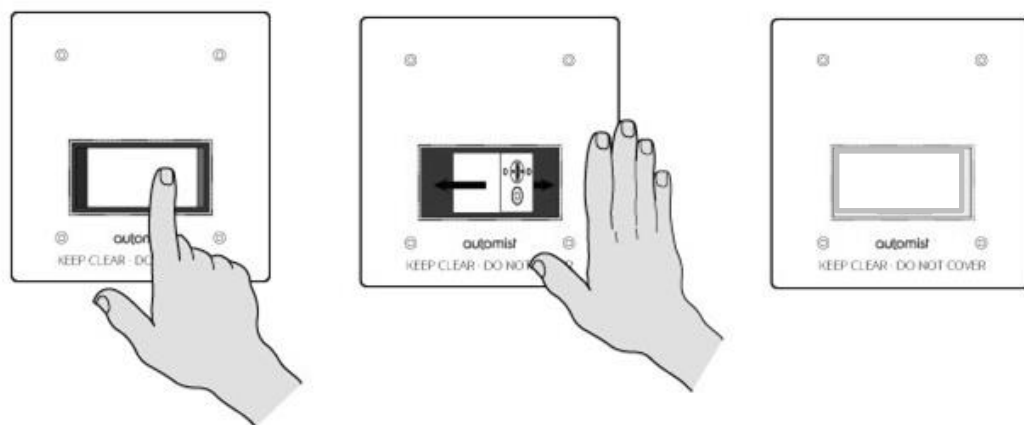
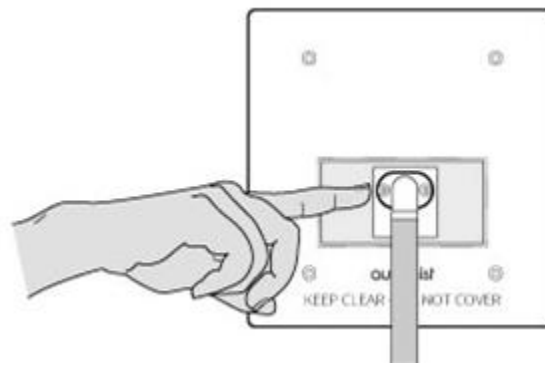


Figure 48: Testing the IR sensor and selecting the head for flow testing

Unscrew the cap on the quick connect test point (see page 40) and connect the test hose and gauge to the test point adapter. Connect the commissioning kit to the selected spray head and place a bucket on the floor to collect the water. Ensure the volume of water reaches the approximate 6lt level mark in the bucket.

The next step of commission is testing the water path. Gently push the head 45 degrees to initiate flow test. The head will begin to flash yellow to indicate water is about to flow, during this period the head may be pressed again to cancel. Once flow begins the head will light blue. At this point the water can be stopped by pushing the 45 degrees head again if required.



Yellow flashing means water flow is coming. Solid blue means water is flowing. Solid green means successful flow test complete.

Figure 49: Attach flow test tool and gentle push the head 45 degrees to initiate or stop the flow test.

Once the flow test is successfully complete the spray head will turn solid green. Check the gauge during the flow and ensure that the output pressure has reached a stable 80 to 110 bar.

Note: the system has one second pause after 10 seconds and 30 seconds from activation of pump as a safety feature. Read the pressure after the second pause.

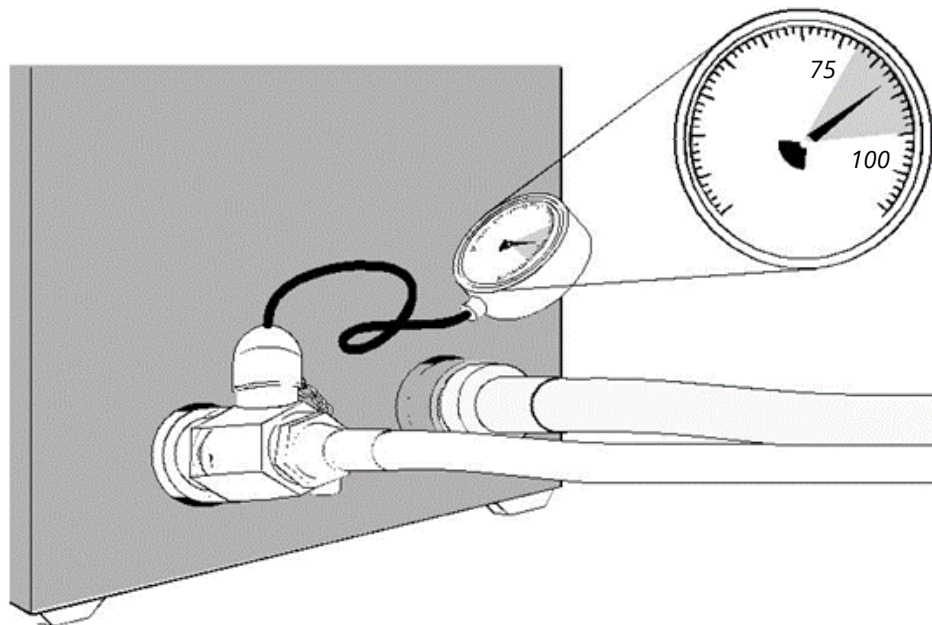


Figure 50: The pressure gauge during commissioning.

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 61) and contact Plumis if the situation cannot be resolved.

IMPORTANT! Check that there are no leaks behind the head, at the pump or along the hoses.

IMPORTANT! A very small amount of water underneath the pump after commissioning is acceptable. This leak comes from the pump gasket only when the pump is switched on. In this

case, dry the pump base and wait for 5 minutes. Verify that there is no more leak coming from the pump when the pump is off.

IMPORTANT! The commissioning tool and other aids obstructing the spray head must be promptly removed.

IMPORTANT! Wipe the head IR sensor dry with a dry cloth, to ensure that there is no water left on the IR sensor.

IMPORTANT! With the commissioning tool disconnected, gently push the head 45 degrees to complete the flow commissioning and lock the head.

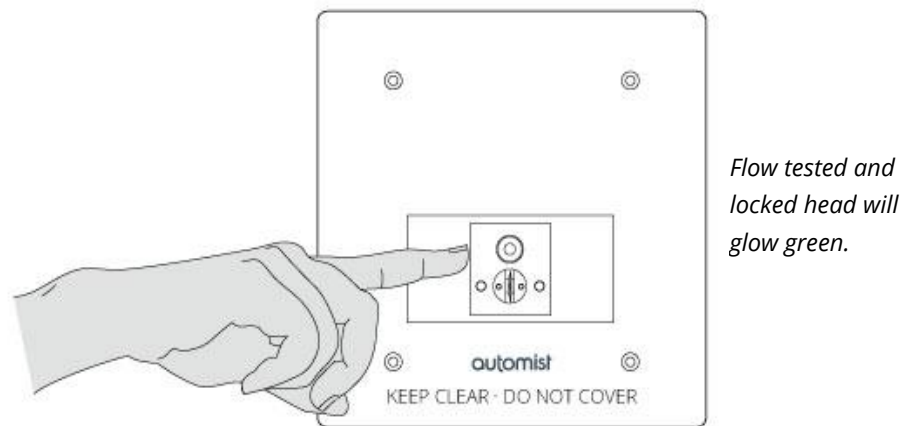


Figure 51: Remove flow test kit and gently tap to close head and lock

IMPORTANT! Repeat the process for every spray head. Always select the lowest spray head and nearest to the pump first for flow testing first before progressively moving higher and further away from the pump. This order considers the most effective way to drain the hoses. Once all the heads in the system have been flow tested and are glowing green. Press ENTER on the controller to go to the next stage only when all the heads are flow tested. Short hold STOP to go back to the previous state, if required.

4. **Pipe draining state** – The four flashes of the GREEN LED on the controller indicates commission process four. Remove the quick connect test point with the pin and allow any remaining water to be drained into a bucket. During this state all the spray heads flash rainbow colours and are locked, they can be selected individually to connect a commissioning tool if additional water needs to be pumped out. The high pressure hose must be cleared of water by connecting a bicycle pump or a suitable compressor pump (see page 52) to the Plumis supplied attachment that is connected to the test point.

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 must be expelled after commissioning.

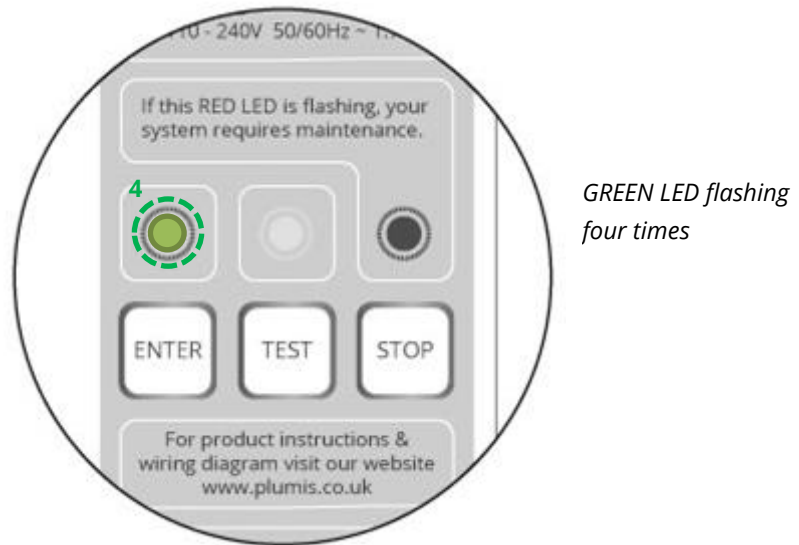


Figure 52: Commissioning mode – commissioning pipes state

Press ENTER on the controller to complete the commissioning process. Short hold STOP to go back to the previous state, if required.

5. **System ok**

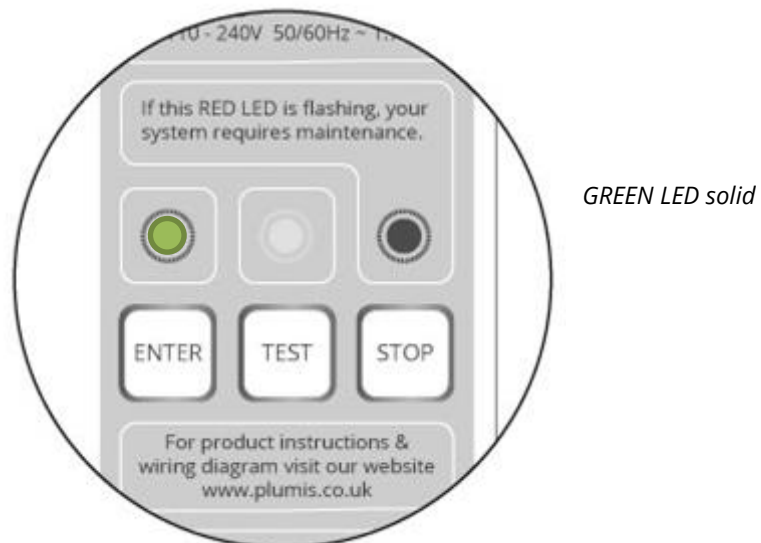


Figure 53: System ok

Slide the heads into the rectangular hole (89+/-2mm wide x 117 mm high) and fasten in place using the box “old work” mounting clips provided. The clips lock the spray head tightly to wall plaster, dry wall of any thickness up to ¾”, concrete block, brick or concrete wall.

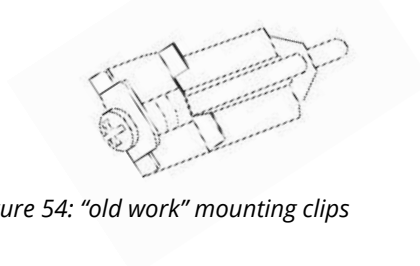


Figure 54: “old work” mounting clips

Attach and fasten the front plate to the intermediate plate and align, ensuring parallelism to floor and wall. You can align the Front Plate in reference to the floor.

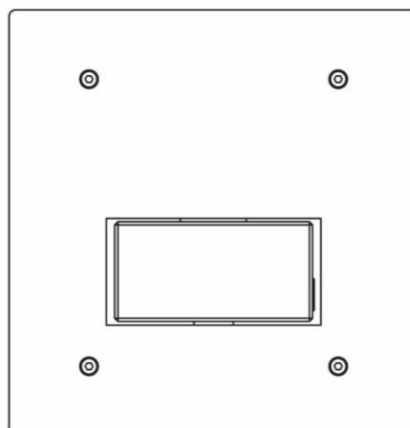


Figure 55: Front plate

Please ensure there is good clearance around the rotating head and the front plate. It is recommended to perform a final alarm test mode (see page 52) to ensure the heads has the freedom to rotate.

Once you have successfully commissioned your unit, complete the online commissioning form and attach a layout diagram and photos.

Place the two warning stickers and the commissioning label:

- Label the separate circuit on the distribution board
- Label the heat alarm that triggers Automist Smartscan Hydra, preferably near the test button
- Complete the installer commissioning label and affix to your Automist Smartscan Hydra pump.

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.




Cold water inlet only					
					
Installer _____		Installation date _____			
Installation Company _____					
Person/s responsible for maintenance _____					
Contact details of person/s responsible for maintenance _____					
Maintenance is required _____ Annually / Biannually					
Date	Pressure	Date	Pressure	Date	Pressure
All installations must be registered - www.plumis.com					

Figure 56: Stickers

IMPORTANT! Fill out the user instructions one pager and leave for the homeowner in an appropriate place. Also available for download on the partner page.

About your Automist Smartscan System

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

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

DONT put objects in the way of the spray nozzles. Automist will only operate at its maximum effectiveness when spray heads are kept clear.

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

If the **RED LED** on the controller, or the heads are **flashing RED**, your system requires maintenance. Contact your Accredited Automist Installer.

Do not attempt to repair your Automist system. Doing so will invalidate your warranty (details on your Automist warranty certificate).

The pump is located	
The controller and therefore the STOP button is located	
If the Automist system is making sounds, flashing red, or leaking water, call	

Registration

Register your Automist fire sprinkler online at www.plumis.co.uk/register

- Ensure you can take full advantage of the manufacturer's warranty
- For Product update or essential bulletins
- Learn key information about how your system works
- Optional maintenance reminders to ensure your life safety system is working

Waste electrical products should not be disposed of with household waste. Please contact the organisation who provided Automist for recycling/disposal advice as regional variations apply.

Plumis

Figure 57: User Instructions

Hose Draining

IMPORTANT! The high-pressure hose must be cleared of water by connecting a bicycle pump or an air compressor pump with a maximum pressure of 8 bar for draining of water.

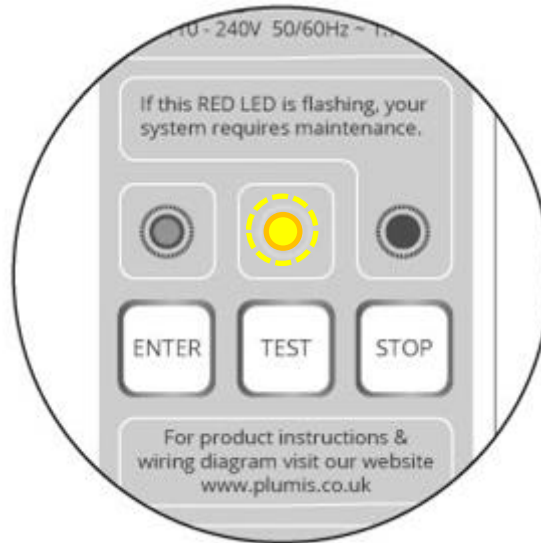
Re-enter Commissioning Mode After Successful Commissioning

The system will be locked one hour after it is successfully commissioned. To re-enter the commissioning mode in the locked status, please power cycle the system and then long hold "ENTER" & "STOP" buttons for up to one minute.

Alarm Test Mode

Once the system is commissioned ALARM TEST MODE allows you to test the alarms in the home without activating Automist Smartscan Hydra, by causing the paired heads to begin scanning. Alarm testing is a normal part of detector maintenance as part of the manufacturer's guidelines (see page 57). If the detector is a combination heat and smoke alarm both elements must be tested independently with a heat gun and then a smoke detector tester aerosol:

- In the SYSTEM OK stand-by, pressing and holding the TEST button may be used to enter ALARM TEST MODE. The YELLOW LED will then start flashing – this indicates that ALARM TEST MODE is activated.



YELLOW LED flashing

Figure 58: ALARM TEST MODE

- In this mode you have a short time (15 minutes) to test the alarms either by pressing the alarm's test button, or with a smoke gun, or a heat gun. All paired heads flash yellow then red and scan, non-paired heads flash yellow then red but remain closed
- ALARM TEST MODE is deactivated by pushing the ENTER or STOP button; this will be confirmed by the GREEN LED returning to constantly lit.

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

IMPORTANT! It is the designer's responsibility to ensure when using the product as part of a fire strategy or for code compliance to ensure the system is installed as per the guidelines (see Room Compatibility, page 13). The layout drawing must reflect the installation layout.

Power supply

- The Automist Smartscan Hydra circuit must be clearly labelled (a sticker is provided for this purpose).
- Power to Automist Smartscan Hydra must be provided via an unswitched fused connection unit (FCU).
- Automist Smartscan Hydra must be supplied using FP200 cable or better, ideally inside conduit or protected 50mm deep within a wall
- Automist Smartscan Hydra may be protected by an RCD or RCBO but this protection must not be shared with other circuits. Therefore, Automist Smartscan Hydra must be connected to the non-protected side of the consumer unit.
- The circuit supplying a single Automist Smartscan Hydra unit would commonly be protected by a type 'C10' or 'C16' MCB, for example, or 'C20' / 'C32' for two Automist Smartscan Hydra units.
- Metal consumer units complying with 18th Edition IET Wiring Regulations to BS 7671 2018; do not require the addition of an over box to meet BS476 Part 22 (1987) and EN1364 (1999).

Water Supply

- Check valve and filter must be installed to ensure back flow protection to the mains water and debris into the pump (supplied in kit).
- A PRV must be fitted according to Figure 2 for water hammer / over pressure protection.
- Inlet water must be connected, and the valve left open.
- WRAS approved isolation valves are required so that the Automist Smartscan Hydra system can be shut off from the water main. All such valves must be labelled with the included supply warning labels.
- Priority valves are not normally required but must be used in circumstances where the water supply may otherwise be inadequate.
- Ensure the property has a water supply sufficient for the system operation in a worst-case scenario.

Pump & spray head placement

- All Automist Smartscan Hydra units must have been successfully commissioned using heat/smoke detectors, with both thermal scan and outlet pressure verified.
- Minimum ventilation 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.
- All Automist Smartscan Hydra controllers must show "System OK" (green LED), indicating it has been successfully commissioned.
- The maximum allowable total data cable length from the pump to the furthest spray head in the daisy chain is 60m.
- The maximum allowable total data cable length for the pump to the controller is 30m.

Head Placement

- Between 1.40 and 1.45m high for spray head in non-kitchen area
- Between 1.20 and 1.45m high for spray head in kitchen area
- In a "preferred position" where it is not susceptible to furniture obstruction

- Head placement matches the layout drawing supplied with the commissioning form.

High Pressure Hose

- High pressure hose must have been flushed with air to remove water, avoid dripping and Legionella.
- High pressure hose must be protected by a fire resisting barrier, and a fire resisting sleeve if exposed.
- 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.
- Appendix C (high pressure hose specification) is met.

Stainless Steel Piping (alternative to high pressure hose)

- Material: Stainless Steel
- Stainless steel pipes and fittings must conform to
UK (BS 8458:2015): ASTM A269-10 and ASTM A312
US (NFPA 750): ASTM A269 or ASTM A 632 or ASTM A 778 or ASTM A 789/ A 789M
- Internal diameter: 5/16" (8 mm)
- Working pressure at least: 150 bar
- Maximum total length: 50m

Coverage

- **IMPORTANT!** It is the designer's responsibility to ensure when using the product as part of a fire strategy or for code compliance to ensure the system is installed as per the guidelines (see Room Compatibility, page 13).
- If protecting the means of escape only, ensure all adjacent rooms which are not separated by a fire resisting door are covered. Covering only the stairs will not suppress fires in non-separated adjacent rooms, negatively impacting tenability on the escape route.

Documentation

- Installer sign-off details (including pump pressure) are noted on pump.
- An occupant information sheet must have been provided to the property.
- The Installer Commissioning form must 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.

SMARTSCAN HYDRA CARE

What to do if the system activates?

Once the system is activated, it will remain beeping whilst the pump is running.

To stop it, you can either:

1. Wait until the pump has run continuously for 30 minutes. It will then exit to Idle mode (uncommissioned).
2. Press the stop button and the system will remain beeping for 12 minutes. During this time if at the end of the first 2 minutes (therefore during the last 10 minutes), if a detector activates the system will reactivate. This mode was created to address the fire returning after the occupant believes it has been extinguished. When in this mode do not switch off the power or it will reset the 12-minute timer. If the alarm condition has ended, Automist Smartscan Hydra will return to an uncommissioned state and requires full recommissioning.

Please be patient and wait for the 12 minutes to end before trying to recommission the system.

Maintenance

Automist Smartscan Hydra must be serviced by an Accredited Installer annually. The annual service consists of the following steps:

- 1) Visual inspection
 - Ensure that each head is clear from obstructions (1.5m on each side) and advise the client that if this area is not kept clear of obstructions over 1.2m high it may hinder the operation of their fire safety system. It is recommended you take pictures of each head for your records. If you find any head has been obstructed, issue the customer with a non-compliance notice (on page 91).

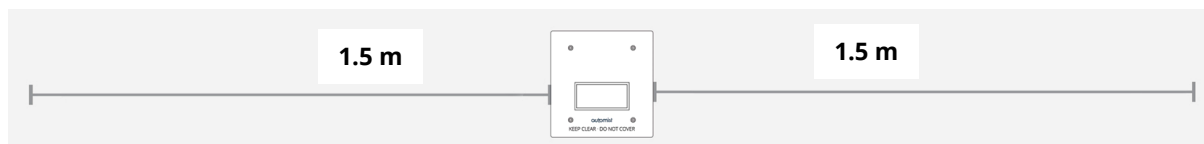


Figure 59: Keep clear of obstructions zone (min. 1.5m)

- Be sure included the full wall including where the head is mounted so it can be located later, rather than a close-up of just the head.
 - Verify that the layout has not changed from the original drawing. If it has, issue the customer with a non-compliance notice (on page 91).
 - Verify that there is no discolouration of the filter element.
 - Inspect the heads and the low-pressure connection for any sign of leaks. If there are any signs of leaking following the troubleshooting guide to find the fault.
- 2) Service the detectors
 - Change the battery on any wireless alarms.
 - **IMPORTANT!** – only use batteries specified. Use of different batteries may have a detrimental effect on the detector. The wireless detector should be powered by a 3 AAA Duracell Procell or 3 AAA Energizer E92 batteries. The detectors flash yellow every 12 seconds for a low battery warning.

Be sure to replace the batteries with new ones at each annual servicing regardless if they are low or not.

- To clean your alarm, remove it from the mounting base. N.B. This will trigger a tamper error on the controller. You can clean the interior of the alarm by using compressed air or a vacuum cleaner hose and blowing or vacuuming through the openings around the perimeter of the detector. The outside of the detector can be wiped with a damp cloth (please refer to the manufacturer's instructions).
- After cleaning reinstall and test your alarm by using. If cleaning does not restore the alarm to normal operation the alarm must be replaced.

3) Software update process

- Complete a full software update (see Software update process on page 59)

4) Commissioning

- **IMPORTANT!** Undo the locking pin and remove the quick connect test point the pump. Pour out any stagnant water into a bucket. If this is more than a pint, please take a photo and contact Plumis.
- Complete a full recommissioning (see E) Commissioning on page 42)

IMPORTANT! Every 5 years additional maintenance must be carried out before starting the normal procedure:

1) Replace the consumables

- Replace the washers in the low-pressure hoses
- Replace the filter with a new one

Software update process

IMPORTANT! Updating the software is required as part of the maintenance of the system and can only be performed by an Accredited Reseller Installer with a valid certificate. Switch off electricity at the mains before working on existing circuits. Take care not to touch the PCB. Do not over tighten the terminals.

The latest version of the software is uploaded to the datalogger once a year by Plumis.

Locate the controller within the customers house. Common locations include near the RCD. Check that only the controller green LED is lit, showing the controller is powered with no errors. Unscrew fastening screw(s) with a small Philips head screwdriver. Be careful with the screws as you will need them when reassembling. Expose the controller PCB by lifting the lid up and to the side. Be careful not to lift too far up as the flexible keypad is connected to the PCB.

The PCB has three areas of interest on the board:

- a) Software LED. This will be illuminated and flickering when software is running on the board.
- b) Power LED to indicate the board is powered.
- c) 6pin needle programming port. We will be connecting to this to reprogram.

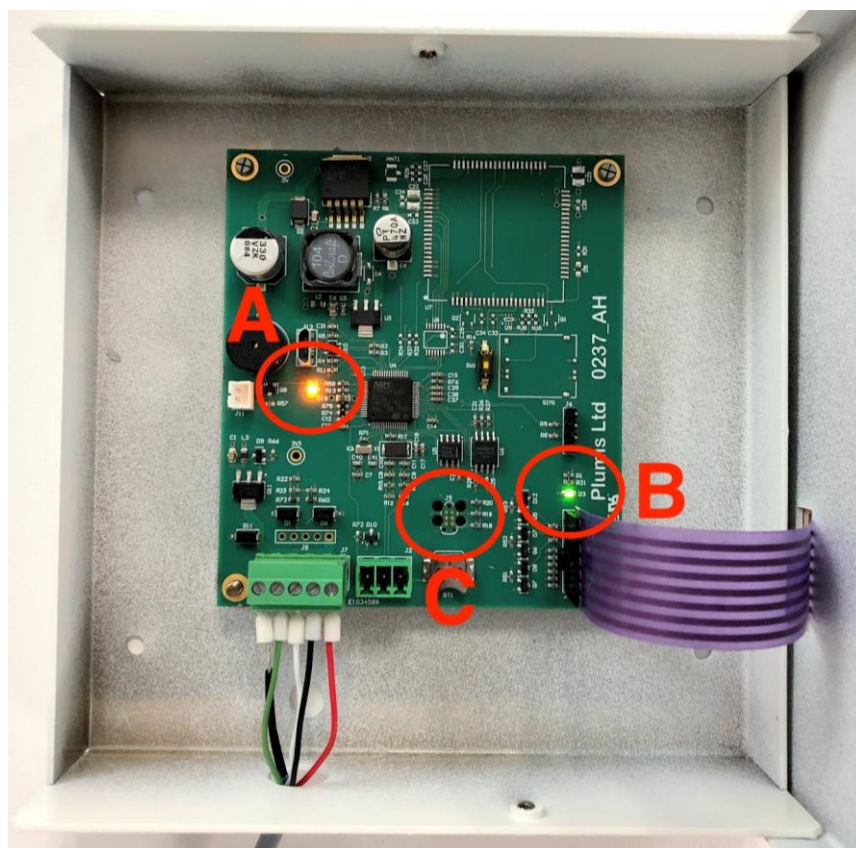


Figure 60: Inside the controller

Setup the Kit

Remove the Flasher and 6pin needle adapter from the kit box. Insert the 6pin needle adapter into the Flasher. Turn on the Flasher by pressing the power button, it will now display "Ready".

IMPORTANT! The flasher may turn off after a while. Simply press the power button to turn back on.

Programming

Press the 6pin needle adapter into the controller PCB programming port. The four support legs may need to be pinched in as you press the adapter into the PCB. When fully inserted the needle adapter will be locked to the PCB.

We are now ready to update the controller software. If necessary, turn the flasher on, then press the 'PROG' button on the Flasher. Watch the Flasher display, it will say "Erasing", then "Programming", and finally "OK". Note: If the red "ERROR" is displayed, please check your connection and retry. If it still persists, contact Plumis R&D for advice. Note: The Hydra heads will lock and start flashing red x4. The heads will remain like this until we reset the controller in the next section.

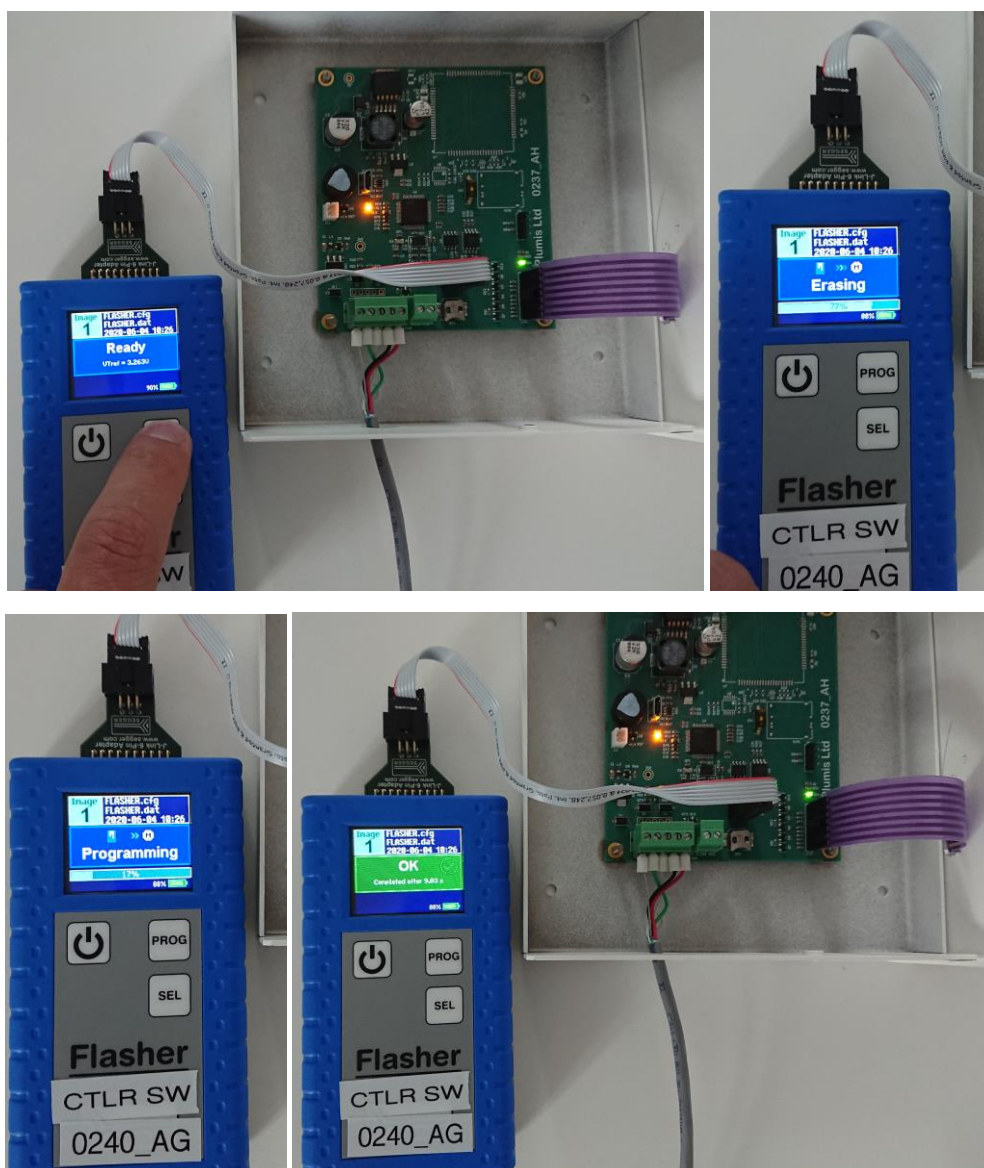


Figure 61: Updating the software

Finishing Up

Disconnect the needle adapter from the PCB by pinching the legs in and pulling upwards. The controller requires a power cycle to start running the newly programmed software. To do this disconnect the Power/Data connector in the bottom right of the board, then reconnect. You will now hear the Controller start-up chime, and the Hydra heads will return to the parked position. Close the lid of the controller. Screw in the top and bottom lid fastening screws. There is no need to commission the system after a software update unless commissioning is required (see page 42).

Cleaning

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

To clean your alarm, remove it from the mounting base. N.B. This will trigger a tamper error on the controller. You can clean the interior of the alarm by using compressed air or a vacuum cleaner hose and blowing or vacuuming through the openings around the perimeter of the detector. The outside of the detector can be wiped with a damp cloth.

After cleaning reinstall and test your alarm by using. If cleaning does not restore the alarm to normal operation the alarm must be replaced.

It is recommended that the homeowner test the alarm in ALARM TEST MODE (see page 52) once a week! This mode allows you to test the alarms causing the paired heads to begin scanning.

Repair

CAUTION! Do not attempt to repair the Automist Smartscan Hydra head, controller or pump unit. Doing so will invalidate your warranty.

Automist Smartscan Hydra must be serviced or replaced if any part of the system, including any heat alarms, has 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 Smartscan Hydra 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.

Problem	Probable Cause	Recommended Action
	Mains pressure or flow is too low	<p>Close off the water with the isolation valve and disconnect the hose.</p> <p>Verify that the water mains connection can supply at least 8 litres per minute (lpm) of flow and if possible, check that the static inlet pressure is at least 1.5 bar.</p> <p>If the flow is close to or below 8 lpm, the mains pressure may be too low for Automist Smartscan Hydra to operate correctly, or there may be constrictions in the water supply. A plumber must be called to resolve the issue.</p>
	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 5.6 litres, there may be an inadequate water supply or a damaged pump. Please contact Plumis technical support.</p>

<p>Controller persistently produces a warbling sound and shows a red LED flashing. The head will also flash the error code.</p>	<p>Pump not yet commissioned</p> <p>Incorrect wiring to pump, controller, or spray head</p> <p>Pump or spray head damaged in transit</p>	<p>The number of beeps (or trills) and flashes that the controller sounds when in fault mode is intended as a diagnostic. Please count the beeps:</p> <p>One beep (Head jammed) - Remove the head from the wall with the connections remaining. Ensuring no items are jamming the head. Turn off and on the system. If the error condition remains, follow the returns procedure (see page 66)</p> <p>Two beeps (Temperature Sensor Error) – Turn off the system. Gently clean the sensor with a clean cloth to ensure there is no dirt on the glass. Power on the system. If the error condition remains, follow the returns procedure (see page 66).</p> <p>Three beeps (Wiring fault (Controller & Pump)) – Turn off the system. Ensure the connections between the pump and the controller are the right sequence. Ensure the cable is not damaged. Important! Ensure the mains is off when disconnecting and making connections. Turn on the system. If the error condition remains, follow the four beep procedure.</p> <p>Four beeps (Wiring fault (Pump & Heads)) – Turn off the system. Inspect the wiring and check the continuity of the connections to the head. Power on to verify the error message is no longer present. Important! Ensure the mains is off when disconnecting and making connections. If the error condition remains, follow the returns procedure (see page 66). This error can also be caused by removing a head or moving a commissioned head from another system into this one, outside of the commissioning process.</p> <p>Five beeps (Factory Fault) – Contact Plumis.</p> <p>Six beeps (Wireless alarm not broadcasting) – Verify the detector is powered and in a normal state (Green flash every 12 seconds). If the detector is off, you may need to change the batteries. If the error is still present your detector may be out of range from the head(s). Remove the detector and move closer to the head(s). If the error condition remains, follow the returns procedure (see page 66).</p> <p>Seven beeps (Alarm Fault Apollo) – This indicates an alarm fault. If it is a wired alarm you have a wiring problem (open or short circuit), please examine the connections. Also verify that you have added a correctly wired resistor to</p>
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Problem	Probable Cause	Recommended Action
		<p>the connection end (see page 27). For a wireless alarm please refer to the alarm failure modes in the next row.</p> <p>Eight beeps (Wireless tamper alarm) – Verify that the wireless alarms are in their bracket.</p> <p>Nine beeps (Factory Fault) - Turn off the system. Wait for 2 minutes. Power on the system. If the error condition remains, follow the returns procedure (see page 66).</p> <p>Ten beeps (Factory Fault) – Follow the returns procedure (see page 66).</p> <p>Twelve beeps (Controller button is stuck) – A button is stuck on the controller. Check no objects are forcing the buttons to be pressed. If not follow the returns procedure (see page 52).</p>
Apollo wireless alarm flashing yellow	Apollo wireless alarm error	<p>When the detector has a general fault, the yellow LED blinks once every four seconds and there is a chirp every 48 seconds. The Controller will go into fault mode if the error state (detector trouble or a dirty detector fault) can affect the operation of Automist:</p> <p>3 yellow flashes every 4 seconds – Freeze warning</p> <p>Yellow flashes every 4 seconds – Detector Trouble</p> <p>Yellow flashes every 12 seconds – Low Battery, please refer to the maintenance section on page 57.</p> <p>Yellow flashes every 8 seconds – Detector Dirty, please refer to the maintenance section on page 57.</p>
Pump does not run during commissioning although there is power to Automist Smartscan Hydra unit	<p>Trigger alarm not connected to Automist Smartscan Hydra</p> <p>Pump damaged in transit</p>	<p>Check that you have connected the alarm to the spray head using ALARM TEST MODE (see page 52).</p> <p>Perform the commissioning procedure with the appropriate head to pair the alarm.</p> <p>Please contact Plumis technical support.</p>
Power circuit trips out as soon as pump starts	Too-small MCB used for Automist Smartscan Hydra circuit	Please refer to page 27.

Problem	Probable Cause	Recommended Action
After commissioning, water continues to flow from the head even if pump is stopped for over 1 minute	Dirt ingress to solenoid valve stopping it from closing	Shut off water. Remove pump inlet. Flow water into waste to ensure it is clean. Reconnect the pump inlet hose. Run the pump for 30 seconds (activating alarm) to allow solenoid valve to be cleaned. Stop pump. Flow must stop as intended.
No mist is produced, although pump runs during commissioning test	Loose high-pressure hose, leakage between pump and Automist Smartscan Hydra head	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.
	Water supply is interrupted	Verify that the isolation valve is open and that there is a water supply to Automist Smartscan Hydra.
	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 Smartscan Hydra 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.
Either the pressure is above the correct range, or the pump pulses or temporarily cuts out during the commissioning test	High pressure blockage	Disconnect high pressure hose between the Automist Smartscan Hydra head and the pump and check for blockages in the high-pressure line or around the inlet to the spray head. Shut off water. Remove pump inlet. Flow water into waste to ensure it is clean. Reconnect the pump inlet hose. Run the pump for 30 seconds (activating alarm) to allow solenoid valve to be cleaned. Stop pump. Flow must stop as intended. If the problem persists, contact Plumis technical support.

Returning equipment to Plumis - RMA

Before sending equipment to Plumis please conduct an A-B-A test. This process allows you to identify the root cause of the failure mode by removing and replacing one element of the system. Gather evidence (photos & video) that the error can be stopped by introducing one new part, and reconfirm the problem comes back by reintroducing it.

The installer must complete an online Plumis Field Issue Report, located on the Partner site, attaching all the evidence, before sending the equipment back to Plumis.

IMPORTANT! Plumis will not accept any products that are returned without a field issue report.

IMPORTANT! Field Issue reports are necessary so Plumis can replicate and identify the failure mode. They are a fundamental part of an insurance and/or warranty claim.

Warranty

Plumis Ltd offers a parts only warranty for its products to be free from defects under normal residential use for a period of two years from the date that the installation is approved by Plumis. If annual servicing is kept up to date, then this warranty is extended to four years. 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. Nor does it cover the product which is installation more than 12 months after the original purchase date.

Plumis Ltd must 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.

APPENDIX A

Automist Smartscan® Hydra has been independently, third party, tested by Exova Warrington Fire to confirm that it meets the performance requirements of BS 8458 2015, as validated by BSI Verification Certificate VC 71258

Regulation to ensure the safety of buildings has rightly been under scrutiny since the Grenfell Tower tragedy. Forthcoming reforms to the building safety regulatory system are likely to implement all the recommendations made by Dame Hackitt in her Independent Review of Building Regulations and Fire Safety, including placing greater accountability on those responsible for building safety.

Building regulations are the legal requirements for all new and significantly altered buildings in the UK. The key thing to note is that they are functional i.e. performance based, rather than prescriptive. This means they state what the requirements are, they do not say how these requirements must be met.

British Standards and documents such as Approved Document B (ADB) provide guidance on how to achieve compliance, effectively providing a recipe (but not the only one) of common historical practices. However, as stated in ADB following the guidance in approved documents does not guarantee compliance with the requirements of regulation and such documents cannot cater for all circumstances, variations and innovations.

What does Approved Document B (2019 Edition) say?

*'Although approved documents cover common building situations, compliance with the guidance set out in the approved documents does not provide a guarantee of compliance with the requirements of the regulations because **the approved documents cannot cater for all circumstances, variations and innovations**. Those with responsibility for meeting the requirements of the regulations will need to consider for themselves whether following the guidance in the approved documents is likely to meet those requirements in the circumstances of their case.*

Note that there may be other ways to comply with the requirements than the methods

described in an approved document...

*Where the guidance in the approved document has not been followed... **the person carrying out building works should demonstrate that the requirements of the regulations have been complied with by some other acceptable means or method.***

Sprinklers are the only means of active fire suppression referred to specifically in the current version of ADB (England). This is because they are mature with detailed standard historical practices. ADB allows for alternatives, as outlined above, and new innovative products and practices are likely to be incorporated as they become more widely adopted. Guidance documents in Scotland and Wales take a more forward-looking approach and specifically mention alternative fire suppression systems.

Is Automist covered by British Standards?

Automist is currently outside the scope of existing Standards for sprinklers (BS 9251, BS 9252) and watermist suppression systems (BS 8458) so we have sought alternative ways to prove its effectiveness and compliance to the Building Regulations.

Extensive testing has been conducted by Exova Warrington Fire, to confirm:

Smartscan Hydra qualifies by meeting the performance criteria in the relevant code of practice for fixed water mist fire protection systems: BS 8458: 2015 (BSi Verification Certificate - [VC 71258](#)). It is LABC Assured ([EWS534B](#)), previously Registered Details, and is deemed to be acceptable as a code-compliant automatic water fire suppression system, for example in accordance with the recommendations of BS 9991:2015.

The development of Automist Smartscan Hydra was steered by computational fluid dynamics modelling by the University of Greenwich's Fire Safety Engineering Group. Once the design was finalised it was extensively tested and proven to deliver performance superior to the requirements of the British Watermist Standard (BS 8458), and even the performance of the widely used sprinkler standard (BS 9252).

What are the performance standards of BS 8458?

BS 8458 is the closest national standard that Automist can be referenced to; despite being outside of its scope - only wet pipe/automatic nozzles systems are within its scope - it is still a watermist based active fire suppression system.

Plumis have focused on demonstrating it meets the relevant performance requirements of this standard:

- a) tackles the fire with at least the same performance of a watermist system
- b) it supplies the required amount of water for the system to operate
- c) its functionality and ability to operate are fully tested in commissioning

For a more in depth assessment of the performance of watermist systems, see this Plumis whitepaper: [Residential Watermist, how to know if it performs.](#)

There are several other British Standards that refer to other systems being used for the same purpose, which are not in contradiction to ADB, but act as other alternative guidance documents:

- [BS 9991:2015](#) Fire safety in the design, management and use of residential buildings. Code of practice
- [BS 5306-0:2011](#) Fire protection installations and equipment on premises. Guide for selection of installed systems and other fire equipment
- [BS 8458:2015](#) Fixed fire protection systems. Residential and domestic watermist systems. Code of practice for design and installation

Designing for the objective, not just the standards

Whilst we will continue to work with the relevant bodies to expand or create Standards to cover systems such as Automist, our primary aim remains to develop a suppression system that provides the best possible outcomes for the applications it is designed for.

For compliance in the USA and elsewhere in the world, Smartscan Hydra will undergo the UL (Underwriter Laboratories) listing process to UL 2167. This process is thorough, well recognised and highly respected internationally.

Beyond just compliance and standards, our watermist system is designed to maximise tenability

(survivability) for the occupant in the room of fire origin. We do this by operating at the earliest time (up to two minutes before a traditional sprinkler) to minimise the production of toxic gases. We have tested the system to demonstrate it can outperform traditional approaches in several real-life scenarios - [watch the videos](#)

BS 8458 Requirement	Prescriptive or Performance?	Automist Smartscan Hydra Provision	Comment on Compliance
1. Scope "watermist systems with automatic nozzles"	Prescriptive	Does not use an automatic nozzle as described in the definitions "an integral quick-response thermal release element" but system does function automatically using a thermal element on the multicriteria smoke and heat detector	Uses an open nozzle configuration and automatic smoke and heat detector. Out of scope of standard but complies with performance requirements.
5. System actuation should be automatic by glass bulb or fusible link, initiated by heat.	Prescriptive	System is actuated automatically by a multicriteria smoke and heat detector	Actuation is not by glass bulb or fusible link, but it is automatic and by smoke and heat. Out of scope but complies with performance requirements.
6.1 Fire Tests When tested, nozzle should suppress fires for 10 minutes for domestic or 30 minutes for residential.	Performance	System runs automatically for 30 minutes until stop button on pump is pressed.	Complies with domestic and residential performance. Run time programmed to default at 30 mins given there is no need for a tank.
6.1 Fire Tests Defines tests and performance criteria.	Performance	System has been tested appropriately and meets all performance criteria.	Complies with performance.
6.2 Limits of Application Defines limits of applicability. 3.5m or 5.5m high 32m2 or 80m2	Performance	Tests a,b,c,d and e have been run so 3.5m high and 80m2 are tested limits. Due to nozzle height from wall, 5.5m high should not be an issue if there are no fire loads at 3.5m and above.	Limits to be verified on a case by case basis and Plumis to be consulted in case of doubt. A fire engineering evaluation may be required.
6.3 System Design b) should be a wet pipe system.	Prescriptive	System is a dry pipe system.	Fire performance validated in tests despite 19 seconds hose filling time and avoids risk of Legionella

6.3 System Design c) Thermally actuated nozzles should meet requirements for quick response in accordance with BS EN 12259-1.	Prescriptive	System is actuated by a double knock setup: smoke and heat detector with less thermal inertia than a fusible link and then an infra-red thermopile sensor to validate the fire and determine its location.	Prescriptive requirement not applicable to Automist.
6.4 Extent of Protection all parts of the dwelling	Prescriptive	System can be installed in as many rooms as necessary depending on objective. Partial protection is acceptable as a compensatory measure, elective safety enhancement or as part of a fire engineered solution.	Extent of coverage varies for any suppression system. Full coverage is a common and best practice, but not mandated when fire engineering principles are followed.
6.5 Hydraulic calculations	Performance	Automist is a pre-engineered system so hydraulic calculations are not required.	No requirement to comply. Pre-engineered design precludes the requirement.
6.6 Discharge Performance Flow for 64m2 Area of Maximum Operation	Performance	In this a pre-engineered, electronically controlled, system so only one spray head activates therefore no additional flow needs to be designed as no other spray heads will activate.	No requirement to comply.
6.7 Discharge duration should be 30 minutes for residential.	Performance	Discharge duration is 30 minutes or until stop button on pump is pressed.	Complies with requirement.
6.8.1 Water Supplies Design should identify water supply requirements	Performance	Automist requires 1bar and 5.6lpm for 30 minutes. Dry pipe avoids Legionella risk.	Complies with requirement.
6.8.2 Water Supplies water can be from mains supply boosted by a pump.	Prescriptive	Automist is always supplied from a mains supply and boosted by its own pump. No need for water tank due to low pump flow.	Complies with requirement.
6.8.4 Mains Water Supplies Flow requirement of 64m2 plus 25lpm (domestic) or 50lpm (residential)	Prescriptive	Priority valve not expected to be required in Automist installations due to its very low flow requirement. 6lpm Install flow requirements to be validated as part of commissioning procedure.	Complies with requirement.

6.9 Backflow Prevention	Performance	WRAS approved backflow check valve included in every install	Complies with the performance requirement of avoiding back flow contamination.
6.10 Nozzle coverage and location Spacing, positioning, height	Prescriptive	Automist' different principle of operation requires different locations as per Technical Handbook which must be followed (always the case for pre-engineered systems, typical for watermist systems).	Alternative coverage and positioning permit proven fire suppression performance validated by third party testing. Compliance with prescriptive requirements is not necessary for performance.
6.11 Components testing and certification	Performance	Automist has been internally tested against relevant UL 2167 requirements to ensure component robustness. Third party certification testing in progress.	Meets performance requirements through in-house testing.
6.11.2.3 Pipes and Fittings	Prescriptive	Automist accepts the use of stainless-steel piping, as per standard or flexible hoses as per Plumis spec.	Complies with requirement.
6.11.3.5 Valves	Prescriptive	a) labelled stop valve is present upstream of pump b) system test valve not required as open nozzle (system flow and integrity tested at nozzle) c) drain valve not required as open nozzle (quick disconnect used for water purge) d) alarm valve not required (alarm triggered electronically)	Complies with the requirements which are relevant and applicable.
6.11.4 Electrically operated devices fire pump power supply	Prescriptive	fused, fire resisting cable, from supply side of consumer unit used	Complies with requirement.
6.11.5 System strainers	Prescriptive	Strainer present upstream of pump	Complies with requirement.
6.11.6 Fire Pumps Location, protection and automatic test	Prescriptive	Location and protection requirements in Technical Handbook. Automatic churn of the pump is not possible on an open nozzle system.	Cannot comply with requirement because not a wet pipe system. Automist pump does not need to be churned to maintain reliability.

6.13 Additives	Prescriptive	No additives used	Not applicable.
7. Installation, commissioning and documentation	Prescriptive	Frost protection only if water supply pipes to pump can freeze, remaining system is dry. System commissioning allows for full discharge, fire simulation test. Higher reliability than 7.2. Plumis warranty only provided when Commissioning Certificate sent to Plumis by authorised installer.	Complies and supersedes requirements.
8. Maintenance	Prescriptive	An Automist annual service consists of a full recommissioning of the system (alarm & discharge) as detailed in the Technical Handbook.	Complies with intent of requirements through specific Plumis procedure.
Annex C. Room fire tests	Performance	System has been tested in accordance with requirements of Annex C and meets all performance criteria.	Complies with performance.

Table 1: BS 8458 Compliance table

APPENDIX B

Application of Automatic Water Fire Suppression Systems (AWFSS)	Sub clause in BS 9991:2015	Watermist system conforming to BS 8458-1
Multi-basement buildings	5.2.1.2d)	Applicable
Houses with one floor more than 4.5 m above ground floor level	6.3c)2)	Applicable
Houses with more than one floor above 4.5 m	6.4b)	Applicable
Loft conversions	6.5,2)	Applicable
Internal planning of flats and maisonettes	9.1d)	Applicable
Provision of inner rooms in flats not more than 4.5 m in height	9.3b)	Applicable
Extended travel distances within an open-plan flat	9.4.2a)	Applicable
Extended travel distances within a flat entered from a floor below the flat	9.4.3a)	Applicable
Maisonettes having a floor level higher than 4.5 m above access level	9.5.2d)	Applicable
Open-plan flats	9.7	Applicable
Flats where occupants are not capable of independent evacuation	11.1	Applicable
Common areas (excluding common corridors and staircases) where occupants are not capable of independent evacuation	11.1	Applicable

*Table 4: BS 9991 Applicable applications of **Watermist Systems***

Application of Automatic Water Fire Suppression Systems (AWFSS)	Sub clause in BS 9991:2015	Watermist system conforming to BS 8458-1
Extended travel distances in common corridors	7.4/11.2	Not applicable
Increased travel distance within cluster flats	9.8.1	Not applicable
Buildings over 30 m	11.1/16.2.2	Not applicable
Reduction in periods of fire resistance	Table 4	Not applicable
External fire spread and doubling unprotected areas	18.4e)	Not applicable
Where buildings are not provided with fire mains	50.1.2	Not applicable
Increased hose distances from a fire-fighting shaft	50.2.2	Not applicable
Flats in atria buildings	Figure C.1	Not applicable
Protecting the base of an atrium or Ancillary accommodation	Figure C.1	Not applicable
Balcony escape where smoke-retarding construction is provided to an atrium	C.2.1 , Option 3	Not applicable
Balcony escape where no construction is provided between a balcony and an atrium	C.2.1	Not applicable

*Table 5: BS 9991 Not applicable applications of **Watermist Systems***

APPENDIX C

Technical Specification for High Pressure Hose and Fitting

"All hoses and fittings must be supplied and installed in accordance with the manufacturer's instructions and must be suitable for use at the pressures and flows to be experienced in the systems with the necessary factors of safety."

Fittings

- 1/4" BSP Female thread with swivel nut with 60° cone mating surface
- Material: mild steel (zinc plated)
- **NOTE:** do not use stainless steel material for any fitting or hose adapter

Hose General

- 1/4" or 5/16" nominal inner diameter
- Hose working pressure of at least: 150 bar
- Minimum burst Pressure: 600 bar
- Total length up to 60m, which contains max. 20m 1/4" hose and max. 40m 5/16" hose. If no 1/4" hose is used, up to 50m of 5/16" hose can be used in one system.
- Any hoses crimped by the installer or on-site must be pressure tested to at least 160 bar and checked for leaks, before connection to the Automist pump

Hose with 1/4" Inner Diameter (Up to 20m in total length)

Multiple hose pieces can be connected by tees or connectors with 1/4" BSP fittings. The total length of 1/4" hose in one Hydra system must NOT exceed 20 meters.

Plumis supplied hose lengths of 2m or 4m:

- Minimum curvature working radius: 40mm
- Plastic exterior to withstand some abrasion during installation and maintenance works
- Hose is pressure tested in factory assembly to 2X working pressure (300bar, so no site testing is necessary)

Hydroscand supplied 1/4" hose with customized length:

- Minimum curvature working radius: 100mm
- Robust rubberised exterior and single or double wire braiding to withstand heavy abrasion during installation and maintenance works and attempts to hammer a nail through from an adjacent wall.
- Single braided: SKU 11011404, Egefex 1 CO
- Double braided: SKU 11021404, Egefex 2 CO
- Weblink: https://www.hydroscand.co.uk/uk_en/product/egeflex-1-co-1101-14
- Hose must be tested at Hydroscand after crimping to minimum 160 bar. In this case, no site testing is necessary.

Hose with 5/16" Inner Diameter (Up to 40m in total length)

Multiple hose pieces can be connected by tee or connector with 1/4" BSP connection. The total length of 5/16" hose in one Hydra system must NOT exceed 40 meter.

Hydroscand supplied 5/16" hose with customized length:

- Minimum curvature working radius: 115mm
- Robust rubberised exterior and single or double wire braiding to withstand heavy abrasion during installation and maintenance works and attempts to hammer a nail through from an adjacent wall.
- Single braided: SKU 11011405, Egefex 1 CO
- Double braided: SKU 11021405, Egefex 2 CO
- Weblink: https://www.hydroscand.co.uk/uk_en/product/egeflex-2-co-1102-14
- Hose must be tested at Hydroscand after crimping to minimum 160 bar. In this case, no site testing is necessary.
- Note that you must still be able to use 1/4" BSP Fittings with a 5/16" Diameter hose.

Approved suppliers of hoses

Hydroscand (several locations in the UK)

<http://www.hydroscand.co.uk/>

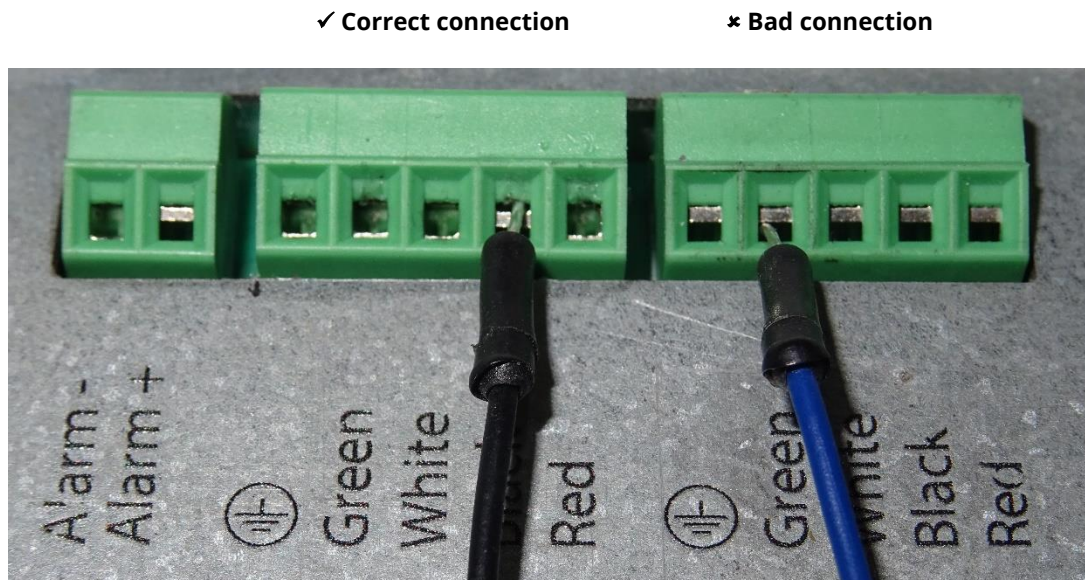
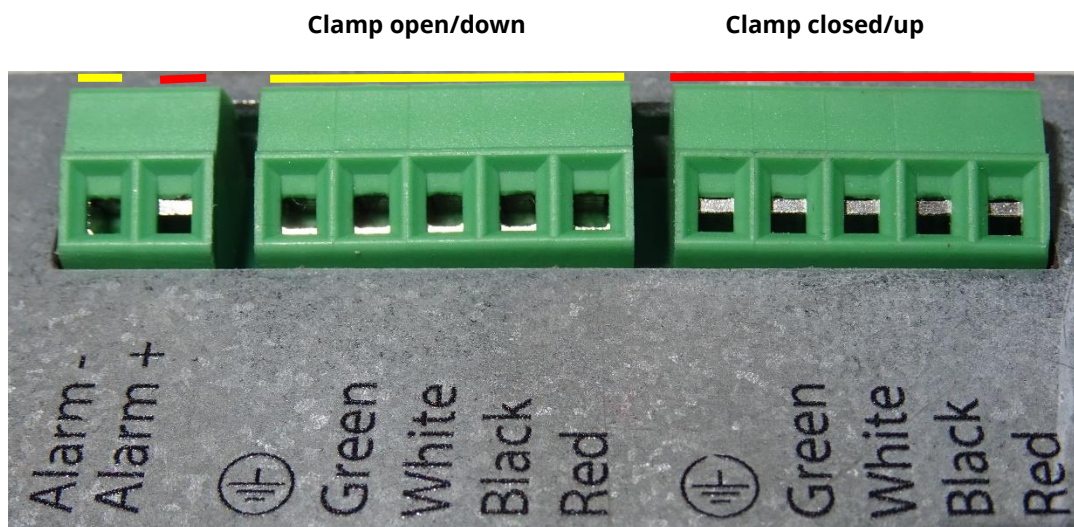
APPENDIX D

Plumis Hydra Screw Terminals

Hydra connections use 'Rising Clamp' type of terminal. Very important to operate the terminals correctly, otherwise they will not make reliable electrical connection and won't properly clamp the wire.

Before inserting wire ensure terminal is fully open/down by rotating terminal screw ANTI-CLOCKWISE 4-5 turns until end-stop, clutch will click with further turns.

After inserting wire turn screw clockwise until tight, minimum 0.22Nm, maximum 0.25Nm. (Note: the green connector block has Phoenix Contact MKDS 1/5-3,5). Test connection by Gently pulling on wire to confirm it is not loose.



APPENDIX E

Plumis Wireless Smoke Heat Alarm (DT01)

GENERAL INFORMATION

The Wireless Smoke Heat Alarm is a 3xAAA battery powered wireless alarm intended for use with an Automist Smartscan Hydra sprayhead. The alarm has a built-in wireless transmitter, which communicates with the control panel via the sprayhead receivers. When smoke is detected, the alarm sounds a loud local alarm and the built-in transmitter sends a signal to the control panel. The Wireless Smoke Heat Alarm contains an integrated fixed 5°C temperature freeze sensor that will send a warning signal based on temperature detected. This alarm is designed to provide protection with 21 meters spacing capability.

The detector can send alarm, tamper and battery condition messages to the Automist Smartscan Hydra's controller. Refer to the wireless system's instruction for the maximum number of transmitters that can be supported.

CONTENTS OF BOX:

- Wireless Smoke Heat Alarm with base
- Pack of screws and anchors
- Labels or decals as appropriate
- 3 AAA PC2400 Duracell Procell batteries (1.5V 1100mAh) or 3 AAA Energizer E92 batteries (1.5V 1100mAh)

The Wireless Smoke Heat Alarm contains a sounder which generates the ANSI S3.41 temporal 3 pattern in an alarm condition. In alarm, a message is also sent to the control panel. The mounting base installation is simplified by the incorporation of features compatible for both drywall fasteners (not supplied) and other methods.

During initial power-up the LED blinks alternately red, yellow then green. It takes about 8 seconds for the detector to stabilize.

After power-up has completed and the alarm is functioning normally, the green LED blinks once every 12 seconds.

SPECIFICATION

Operating Frequency: 2.4 GHz

Maximum Transmit Power: 10 dBm

Protocol: Plumis proprietary

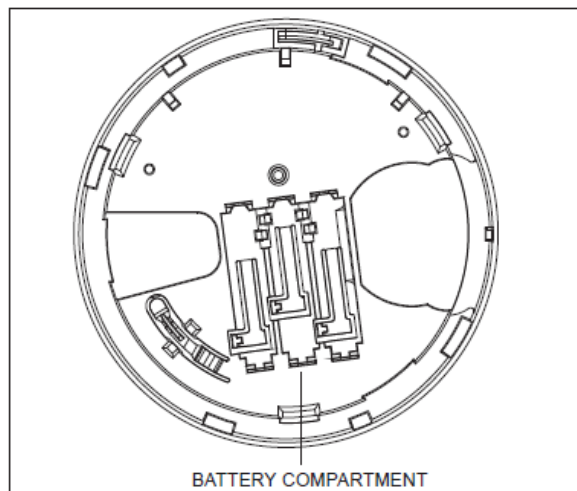
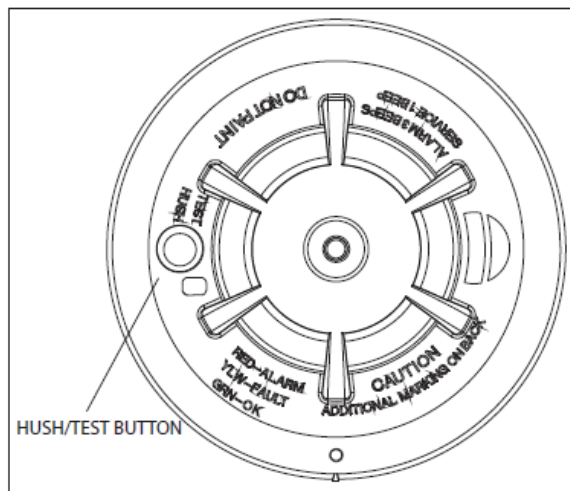
BATTERY INSTALLATION AND REPLACEMENT

To replace the batteries:

1. Remove the alarm from its mounting base by twisting the alarm counter clockwise. Remove and dispose of the batteries according to your local regulations.
2. To ensure proper power-down sequence, wait a minimum of 20 seconds before installing new batteries.

3. Install 3 new AAA batteries (available from your local Duracell or Energizer dealer) in the battery compartment. Follow the polarity diagram inside the compartment. If the batteries are incorrectly inserted please remove gently with a non-conductive tool and correctly reinsert
4. Reinstall the alarm onto the mounting base by turning the detector clockwise until the mating marks align.
5. After the power-up sequence the green LED must blink about once every 12 seconds to indicate normal operation. If the batteries are not installed correctly, the alarm will not operate and the batteries may be damaged. If the detector does not power-up, check for correct batteries installation and for a fully charged batteries. Please refer to the Apollo flash codes for more details.

CONSTANT EXPOSURES TO HIGH OR LOW TEMPERATURES OR HIGH HUMIDITY MAY REDUCE BATTERY LIFE.



APPENDIX F

Technical Specification for Hydra Data & Alarm Cables

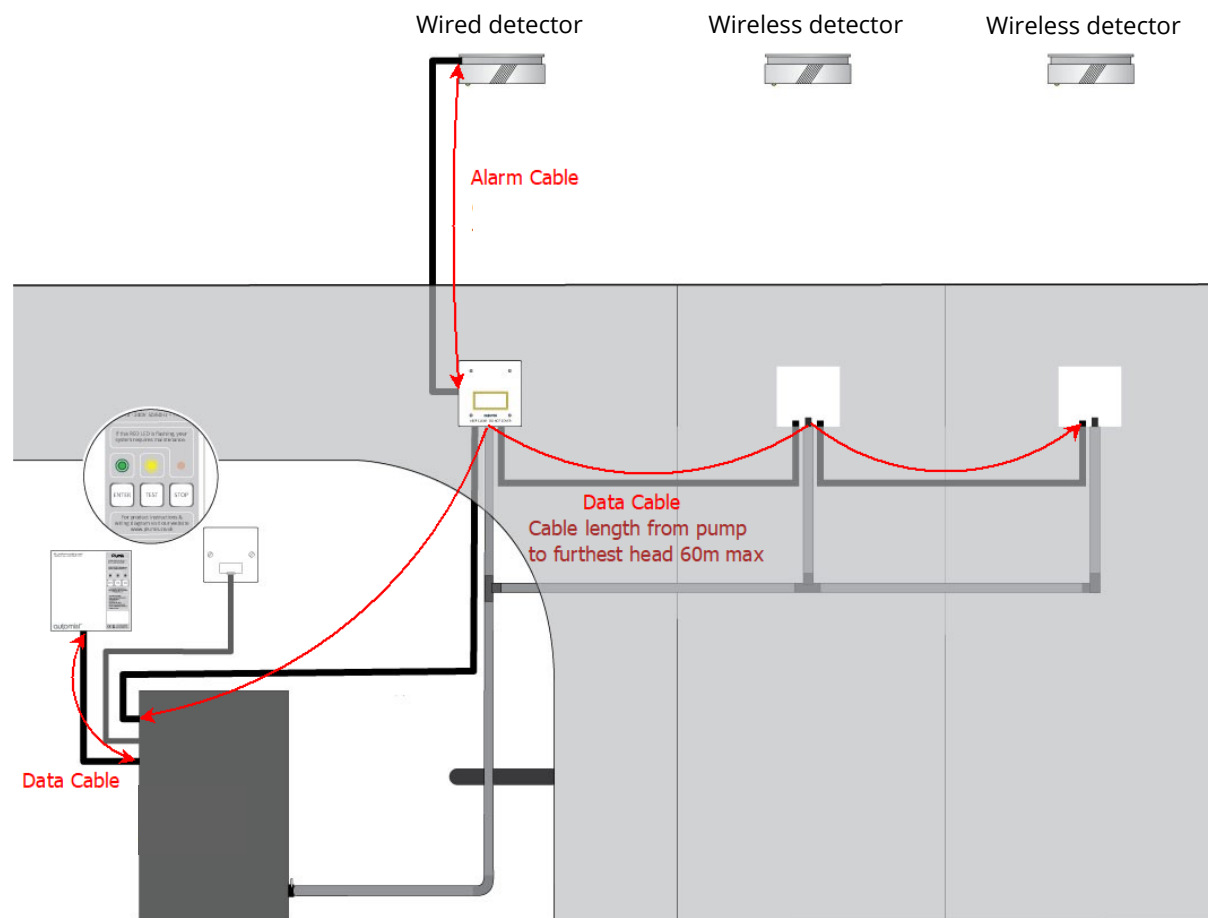
GENERAL INFORMATION

Any queries must be made to technical@plumis.co.uk.

Cables installed into buildings must now be compliant with the 'Construction Products Regulations' CPR and certified to European harmonised standard EN50575.

Note: maximum cable lengths for Hydra is indicated below, installation using longer cables is not approved.

Also, wire ends must have bootlace ferrules fitted to improve connection reliability and avoid short circuits.



	Cable Type	Plumis Part	Manufacturer	MFG Part Number	Supplier
1	Data	E0012-L	FSC	2202PIFRL-E00	FSC
2	Alarm	E0013-L	FSC	39200202H-E00	FSC
3	Alarm	N/A	FSC	39200502H-E00	FSC
4	Alarm	N/A	FSC	387FTD103	FSC

Data Cable Specifications

2 x 2pair x 22 AWG (0.35mm²) Individually Screened Two Pair LSF Data Cable - Grey

Each twisted pair individually shielded with outer shield drain wire

Maximum length of data cable from Controller to Heads 80m

Maximum length of data cable from pump to controller 30m

Construction Products Regulations classification : Eca or better

FSC part number: 2202PIFRL-E00 (available in 100, 200, 300, 500m reels)

Plumis part number : E0012-L

Alarm Cable Specifications

Option 1: 39200202H-E00 (FS Cable SKU)

7-2-2A Defence Standard Single Pair 0.22mm² Unscreened LSHF Cable - Black

Construction Products Regulations classification : Eca or better

Maximum length of alarm cable from Alarm to the furthest Head 20m

Option 2: 39200502H-E00 (FS Cable SKU)

16-2-2A Defence Standard Single Pair 0.35mm² Unscreened LSHF Cable - Black

Construction Products Regulations classification : Eca or better

Maximum length of alarm cable from Alarm to the furthest Head 20m

Option 3: 387FTD103 (FS Cable SKU)

2 x 0.65mm Firetuf Data BS5839 IEC60331-2 Red LSHF 910234 / 60018006

Maximum length of alarm cable from Alarm to the furthest Head 20m

ONLY use one pair of cables for the wired alarm and leave the other pair of cable and shield wire disconnected

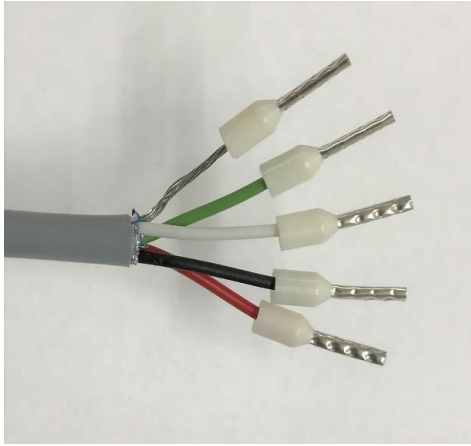
Cable Supplier

FS Cables, Alban Park, Hatfield Road, St Albans, Herts, AL4 0JX, Tel: +44 1727 840 841

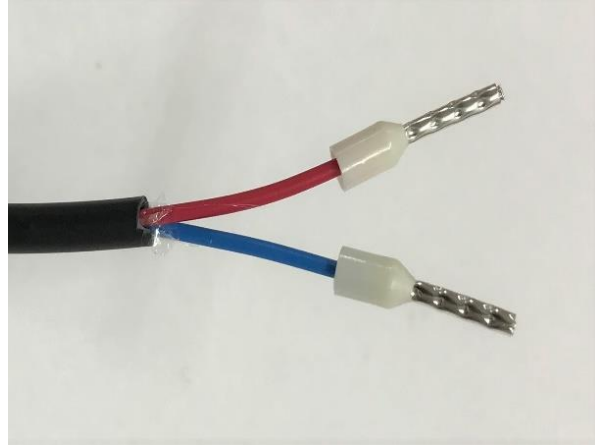
Contact : Lee Girdler leegir@fscables.com

Wire Terminations

Data and Alarm cables **MUST** be terminated with crimped on bootlace ferrules as shown below. The individual wires must have insulation stripped back from wire ends approximately 15mm before the ferrule is fitted.



Data Cable (2202PIFRL-E00)



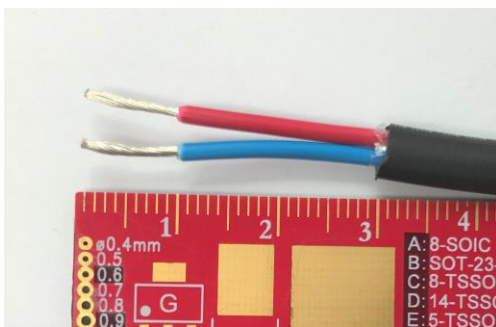
Alarm Cable (39200202H-E00)



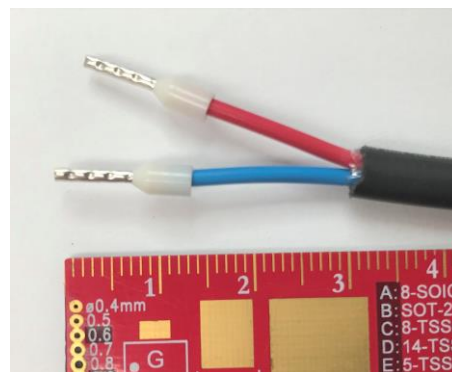
Alarm Cable (39200502H-E00)



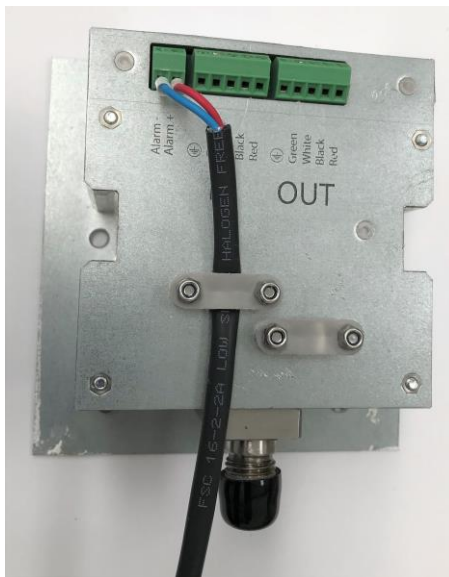
Alarm Cable (387FTD103)



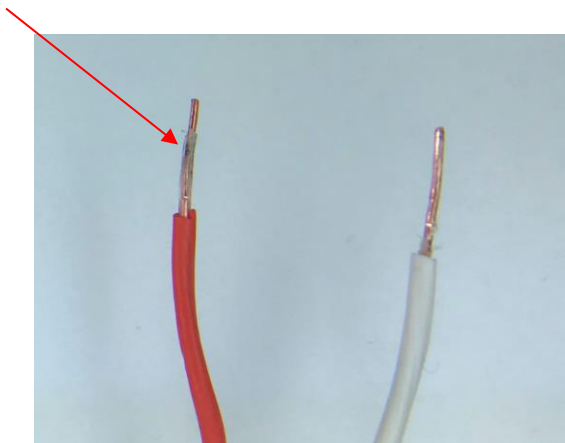
Alarm Cable (39200502H-E00) 30mm jacket crimped removed, 10mm insulation removed.



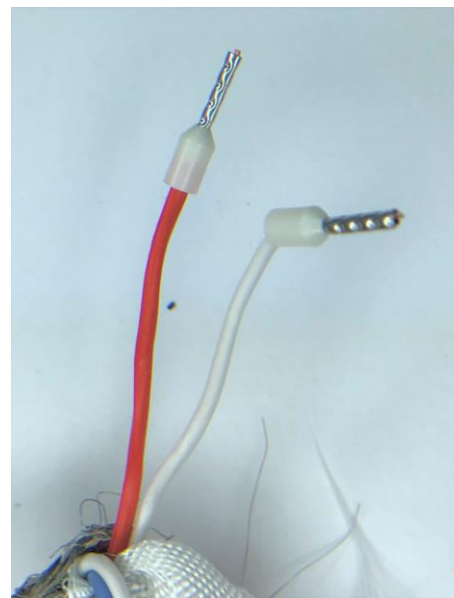
Alarm Cable (39200502H-E00) 0.5mm² ferrules



Alarm cable in spray head alarm connector



Alarm Cable (Firetuf 387FTD103) silicone insulation



Alarm Cable with 0.5mm² ferrule crimped

Stripped back 10mm, note the clear silicone inner insulation (red arrow) must also be removed.

Bootlace Ferrule (mandatory): Multicomp E0508-WHITE, 0.5mm² / 22AWG, pin length 8mm, overall length 14mm.

Supplier: <https://uk.farnell.com/multicomp/e0508-white/ferrule-22awg-14mm-nylon-white/dp/9972218>



Bootlace Ferrule

Crimping Tool: Neo Tools 01-507 0.25-6mm² / 23-10 AWG range.

Supplier : <http://en.neo-tools.com/zaciskarka-koncowek-tulejkowych.html>



Crimping Tool

APPENDIX G

Non-compliance notice			
The Automist can provide fire protection when installed and used in compliance with the manufacturers Design, Installation, Operation and Maintenance (DIOM) Manual. Your installer has identified the following non compliances. Please take the following measures to rectify them.			
Installation Ref	Engineer Name	Date	Type
e.g. BLU234	e.g. Ms Smith	e.g. 01/01/2020	Code compliance or elective upgrade
Address	e.g. Plumis Ltd, Unit 4, Phoenix Trading Estate, Bilton Rd, Perivale, Greenford UB6 7DZ		
Item			
Non-compliance			
Corrective action			
Item			
Non-compliance			
Corrective action			
https://docs.google.com/spreadsheets/d/1B-RZo2H6jpWN15-cPG_GvWm6DVwXzID3wPCDmKM5Lr8/edit?usp=sharing			

APPENDIX H

ONSITE COMMISSIONING FORM						
Installation Ref	Engineer Name		Date		Type	
e.g. BLU234	e.g. Ms Smith		e.g. 01/01/2020		Code compliance or elective upgrade	
Address	e.g. Plumis Ltd, Unit 4, Phoenix Trading Estate, Bilton Rd, Perivale, Greenford UB6 7DZ					
Property Type (circle one)	1-2 Storey	3 Storey	4+ Storey	Flat	Other	New Build Y/N
Customer	Name		Email			
	e.g. Mr Hassan Wong		e.g. hassan.chi@hotmail.com			
EQUIPMENT LOG						
Alarm	Location		Brand		Type	Serial no.
1	e.g. Bedroom 1		e.g. Aico		Wired or wireless	e.g. 2342
2	e.g. Bedroom 2		e.g. Aico		Wired or wireless	e.g. 2343
3	e.g. Bedroom 3		e.g. Aico		Wired or wireless	e.g. 2344
4	e.g. Bedroom 4		e.g. Aico		Wired or wireless	e.g. 2345
5	e.g. Bedroom 5		e.g. Aico		Wired or wireless	e.g. 2346
6	e.g. Bedroom 6		e.g. Aico		Wired or wireless	e.g. 2347
7	e.g. Bedroom 7		e.g. Aico		Wired or wireless	e.g. 2348
8	e.g. Bedroom 8		e.g. Aico		Wired or wireless	e.g. 2349
9	e.g. Bedroom 9		e.g. Aico		Wired or wireless	e.g. 2350
10	e.g. Bedroom 10		e.g. Aico		Wired or wireless	e.g. 2351
11	e.g. Bedroom 11		e.g. Aico		Wired or wireless	e.g. 2352
12	e.g. Bedroom 12		e.g. Aico		Wired or wireless	e.g. 2353
13	e.g. Bedroom 13		e.g. Aico		Wired or wireless	e.g. 2354
14	e.g. Bedroom 14		e.g. Aico		Wired or wireless	e.g. 2355
15	e.g. Bedroom 15		e.g. Aico		Wired or wireless	e.g. 2356
16	e.g. Bedroom 16		e.g. Aico		Wired or wireless	e.g. 2357
17	e.g. Bedroom 13		e.g. Aico		Wired or wireless	e.g. 2354
18	e.g. Bedroom 14		e.g. Aico		Wired or wireless	e.g. 2355
Controller	Location		Serial no.		Software version	
1	e.g. Landing cupboard		e.g. 54354355		e.g. 0.1.01	
2	e.g. Landing cupboard		e.g. 54354355		e.g. 0.1.01	
3	e.g. Landing cupboard		e.g. 54354355		e.g. 0.1.01	
Circuit	Circuit breaker		Protection		Breaker Rating	
1	e.g. C,B,D		e.g. MCB, RCBO, RCD		e.g. 10	
2	e.g. C,B,D		e.g. MCB, RCBO, RCD		e.g. 10	
3	e.g. C,B,D		e.g. MCB, RCBO, RCD		e.g. 10	
Pump	Location	Inlet pressure	Inlet flow rate	Serial no.	Hose Length	Circuit no.
1	e.g. Landing cupboard	e.g. 3 bar	e.g. 3 lpm	e.g. 08456324	e.g. 15 m	1
2	e.g. Landing cupboard	e.g. 3 bar	e.g. 3 lpm	e.g. 08456324	e.g. 15 m	2

3	e.g. Landing cupboard	e.g. 3 bar	e.g. 3 lpm	e.g. 08456324	e.g. 15 m	3
Head	Location		Type		Pressure	Pump no.
1	e.g. Bedroom 1		e.g. Smartscan Hydra		e.g. 100 bar	1
2	e.g. Bedroom 1		e.g. Smartscan Hydra		e.g. 100 bar	1
3	e.g. Kitchen 1		e.g. Smartscan Hydra		e.g. 100 bar	1
4	e.g. Kitchen 1		e.g. Smartscan Hydra		e.g. 100 bar	1
5	e.g. Bedroom 2		e.g. Smartscan Hydra		e.g. 100 bar	1
6	e.g. Bedroom 2		e.g. Smartscan Hydra		e.g. 100 bar	1
7	e.g. Living room 1		e.g. Smartscan Hydra		e.g. 100 bar	2
8	e.g. Living room 1		e.g. Smartscan Hydra		e.g. 100 bar	2
9	e.g. Bedroom 1		e.g. Smartscan Hydra		e.g. 100 bar	2
10	e.g. Bedroom 1		e.g. Smartscan Hydra		e.g. 100 bar	2
11	e.g. Kitchen 1		e.g. Smartscan Hydra		e.g. 100 bar	2
12	e.g. Kitchen 1		e.g. Smartscan Hydra		e.g. 100 bar	2
13	e.g. Bedroom 2		e.g. Smartscan Hydra		e.g. 100 bar	3
14	e.g. Bedroom 2		e.g. Smartscan Hydra		e.g. 100 bar	3
15	e.g. Living room 1		e.g. Smartscan Hydra		e.g. 100 bar	3
16	e.g. Living room 1		e.g. Smartscan Hydra		e.g. 100 bar	3
17	e.g. Bedroom 3		e.g. Smartscan Hydra		e.g. 100 bar	3
18	e.g. Bedroom 3		e.g. Smartscan Hydra		e.g. 100 bar	3
Notes/deviations						

<https://bit.ly/3gzPCLP>