

# Evidence from the experience in the field of electronically operated domestic water mist systems

Steven Dynan<sup>1</sup> and William Makant<sup>2</sup>

Plumis, London, United Kingdom.

<sup>1</sup> Presenting author email: [steven@plumis.co.uk](mailto:steven@plumis.co.uk)

**BIO:** Steven Dynan has got 25 years' experience working with fire suppression systems. His work has primarily focussed on water mist and sprinkler systems. He has had posts in research and product development and is now Sales Director at company XYZ. John has written several papers and a book on fire extinguishing systems and has been involved in the design and supply of several prestigious and large engineering projects protected by water mist systems. John actively participates in standard's work and chairs the XYZ committee.

## Abstract

*[Background]* There has been extensive research demonstrating the theoretical benefits of using electronically controlled water mist systems, such as faster activation and reduced damage. However, given its recent introduction, there has been very little evidence of its benefits in the field. Part of the reason has been that these systems were installed primarily in new or refurbished homes where the risk of fire is small. Since the Grenfell fire, there has been a duty of care drive to retrofit suppression systems into homes where the risk of fire is higher or where the occupant is less able to escape. This has meant that there is more suppression systems present in environments where there can actually make a difference.

*[Objective]* Since the start of 2023, there have been 3 documented fires, where electronically operated nozzles have been used. This has allowed for some consistent attributes to be observed from the use of such systems.

*[Method]* For all 3 documented fires, there is photographic evidence of the room for fire origin, witness accounts provided by those present at the time of the fire, as well as contractors who attended the location post-fire. Additionally, "black-box" post-mortem data was extracted from all 3 controllers which allowed the fire progression and algorithm decision making to be observed.

*[Results]* The activations showed very limited fire and water damage which reflects on tenability and its suitability for vulnerable occupants. The witness accounts demonstrated surprise by stakeholders with some questioning whether there was a fire at all, given the expected fire damage. The post-mortem data validated the fire occurrence and the location of the fire, as well as evidence that it reached dangerous levels that justified an activation.

**KEYWORD:** electronically operated water mist systems, field experience, residential, retrofit.