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Fox ESS UK - Technical Position Statement

PAS 63100:2024 and Outdoor Battery Energy Storage Installations

Fox ESS recognises the importance of PAS 63100:2024 in establishing a consistent approach to fire safety for domestic battery energy storage installations. We support the objectives of the specification in minimising fire risks and protecting building occupants, and remain committed to the continued development of safe, reliable residential energy storage technologies.

Status of PAS 63100

PAS 63100:2024 is the current published specification addressing fire safety considerations for domestic battery energy storage systems. Section 6.5.5 includes a requirement relating to the positioning of outdoor battery installations within one metre of escape routes, doors, windows and ventilation openings.

It is important to recognise that PAS 63100 is a Publicly Available Specification rather than a statutory regulation in its own right. A formal programme to review and amend the specification has been commissioned by the Department for Energy Security and Net Zero, with the revision process being undertaken through the British Standards Institution.

We welcome this ongoing review and the opportunity for installation requirements to continue evolving in response to technical developments, industry experience and advances in battery safety engineering. Until any amendments are formally published, the existing specification remains the applicable published reference.

Fox ESS Product Design and Safety Engineering

Fox ESS residential battery energy storage products are engineered with outdoor installation as a fundamental design consideration, subject to the requirements and environmental limitations specified for each product.

Our battery systems utilise lithium iron phosphate ($LiFePO_4$) cell chemistry, selected in part for its favourable thermal stability and safety characteristics, alongside multiple integrated protection mechanisms designed to reduce the likelihood and consequences of abnormal operating conditions.

Depending on the product model, these protective measures include:

- **Active temperature monitoring and management:** Battery management systems continuously monitor operating conditions, including cell temperatures, and regulate or restrict operation when predefined safety thresholds are approached or exceeded. Supported products also incorporate active thermal management.

- **Multiple layers of electrical and electronic protection:** Integrated battery management, monitoring and protection functions provide safeguards against abnormal voltage, current, temperature and other fault conditions, with appropriate protective responses.
- **Integrated fire suppression:** Applicable Fox ESS battery products incorporate internal aerosol-based fire suppression technology, providing an additional protective measure in the event of an internal thermal incident.
- **Pressure management and controlled gas release:** Battery enclosures incorporate pressure relief arrangements designed to manage abnormal internal pressure and provide a controlled release path for gases associated with a severe internal fault.
- **Purpose-designed external enclosures:** Products approved for outdoor installation are designed to withstand the environmental conditions specified in their respective technical documentation.

These measures form part of a layered safety strategy, combining preventative monitoring and control with protective mechanisms intended to mitigate the consequences of component failure or abnormal thermal conditions.

Our Position on Outdoor Installation Clearances

Fox ESS recognises that the location and positioning of battery storage equipment are important considerations in the overall safety assessment of an installation.

From a technical perspective, we believe it is important that the continuing development of installation standards takes account of the protective technologies incorporated into modern battery energy storage systems, alongside the specific characteristics and risks associated with the proposed installation location.

The presence of multiple integrated safety mechanisms is relevant to understanding the risk profile of a battery system. Nevertheless, these protective features do not, in themselves, constitute an exemption from the installation requirements set out within PAS 63100:2024.

We also recognise the frustration expressed across the industry regarding the practical implications of these requirements. When interpreted and applied strictly, the current clearance provisions can significantly restrict the suitability of many existing UK properties for battery storage installations, particularly within the social housing sector, where available installation space is often limited. This potentially excludes a substantial proportion of households from accessing the financial and environmental benefits of domestic energy storage technology, even where the proposed equipment incorporates extensive integrated safety measures. We believe this is an important consideration for the ongoing review of PAS 63100, ensuring that installation guidance remains proportionate to the risks involved and does not unnecessarily restrict access to the technology.

As an equipment manufacturer, Fox ESS is responsible for defining the technical characteristics, operating limitations and installation requirements of its products. We do not seek to determine or override the interpretation of installation standards, building regulations or project-specific fire safety requirements, which remain matters for the responsible installation designer, competent persons and relevant approving bodies.

Conclusion

Fox ESS remains committed to advancing battery safety through product engineering, testing and ongoing technical development.

We support the continuing review of PAS 63100 and believe that future guidance should reflect both the importance of protecting building occupants and the ongoing development of battery safety technologies.

We are happy to provide relevant product-specific technical documentation to support installers, housing providers and their appointed technical representatives in assessing the suitability of Fox ESS equipment for proposed installations.

Fox ESS UK
Technical & Product Department
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