Standards Alert

Technical Specification – Batteries and Chargers for HV installation Version 5

The batteries and chargers for HV installations provides DC auxiliary and backup power supply for high voltage protection, control, and monitoring equipment.

Why have the technical specification been updated?

The fifth version of the Technical Specification – Batteries and Chargers for HV installations has been updated as part of a comprehensive review conducted three years after the previous release.

The updates incorporate internal feedback from projects, commissioning, operations, and deviation requests, alongside external input from equipment suppliers to align Sydney Water's requirements with current market offerings. Benchmarking against other utility companies ensured the specifications remain practical and reasonable.

The revisions focus on enhancing clarity, resolving known issues, improving system reliability, achieving cost savings, and upgrading functionalities.

What has changed from the previous version?

Key changes from the previous version include:

Environmental resilience: Enhanced requirements ensure reliable operation in extreme temperatures and humidity, improving equipment durability.

Safety and compliance: Added provisions for hydrogen release and stricter outdoor installation guidelines to address safety risks.

Battery and rectifier optimisation: Updated battery sizing (IEEE485) and introduced modular rectifiers with load-sharing and hot-swapping for improved reliability and maintenance.

System redundancy and maintenance: Mandated dual chargers for critical sites and maintenance bypass switches to ensure uninterrupted power during maintenance or failures.

Enhanced DC distribution and monitoring: Improved load isolation with dedicated circuit breakers and expanded monitoring signals for better SCADA/IICATS integration.

Testing and documentation rigor: Strengthened testing protocols and documentation requirements to ensure system reliability and ease of maintenance.

How do these changes impact users and what are the key benefits?

Key impacts compared to the previous revision include:

- **Cost**: Reduce cost by decreased battery sizing requirement. Cost might increase for dual charger requirements for critical sites, but potential long-term savings from improved reliability and standardisation.
- **Reliability:** Enhanced system reliability through optimised battery sizing, active load-sharing rectifiers, and maintenance bypass switches, reducing downtime during maintenance or failures.
- **Safety**: Improved safety with provisions for hydrogen release, introduce maintenance bypass switch and advanced fault detection systems to mitigate risks like overcharging and short circuits.
- **Delivery**: Streamline the delivery process by providing clearer requirements including functionality testing and documents.
- **Operational efficiency**: Streamlined operations with advanced monitoring, clear labelling, and standardised spare parts, ensuring faster troubleshooting and maintenance.
- **Environmental resilience**: Broader environmental compliance with higher temperature tolerances

ensuring consistent performance in extreme conditions.

When do these changes become effective?

- This specification applies to all projects involving the design and procurement of new HV batteries and charger system, where the design commences after the publication date of this standard.
- For projects where the design commenced prior to the publication of this specification, Project Specifiers may opt to apply this specification in full or in part to help promote better functionality, cost saving and delivery efficiency.
- Existing assets are not required to conform to this standard.

Where can I find the new version?

- iConnect
- SWDelivery Portal
- Sydney Water website

How can I provide feedback?

If you have any feedback on this specification, please email Paul.zhou@sydneywater.com.au.