FirePro.

Samsung SDI

Location: **Asia** Distributor: **FirePro Korea** Application: **Energy Storage System** Industry: **Custom R&D**

SAMSUNG

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Samsung SDI Co. is a Korean multinational technology corporation. Samsung SDI operates through its Chemical, Electronic Materials and Energy segments while it thrives as one of the world's largest manufacturer of lithium ion (Li-ion) batteries. Samsung SDI's Energy Storage Systems use differentiated design technology and innovate lithium-ion batteries for cutting-edge electric vehicles such as the BMW i3. Samsung SDI is listed in Forbes Global 2000 – World's Biggest Public Companies.

The Task

Design, supply, install and maintain bespoke automatic fire suppression systems for Samsung SDI's Energy Storage Systems (ESS) enclosed within standardized intermodal containers. The fire protection systems are commissioned to be compact, durable and reliable. They must have a long life span and be highly efficient and effective. These parameters must be met while remaining environmentally friendly. They must also be able to protect against the complex and challenging Li-ion battery fires. The extinguishing system must be designed according to both local and internationally recognized standards and regulations.

FirePro Generators used:

FP-4200 FP-5700

Risks Involved & Consequences

Samsung SDI's ESS solutions, using Li-ion batteries, offer on demand power management, power dispatch and renewable energy smoothing for various applications including commercial and utility organizations. Li-ion battery technology, despite being constantly improved, still poses a significant fire hazard. A single defective cell, or one that has been subjected to mechanical, electrical or thermal abuse, may lead to an increase in its internal temperature, triggering a thermal runaway. The resulting fire will develop within minutes and can propagate to neighboring cells if not suppressed and controlled on time.

Why FirePro?

The ESS enclosures are not airtight thus gaseous based systems would have had leakage concerns. Furthermore, the inner space is fully utilised thus large equipment (such as pressurised cylinders) are impractical. Samsung SDI's ESS containers are frequently placed in remote locations as they are designed to work without much attendance. The modularity, compactness and autonomy of the system were favourable factors in the selection process. Most importantly, FirePro technology has proven its ability to efficiently and effectively suppress Li-ion battery fires, neutralize flammable off-gases, and control thermal runaway propagation. FirePro's environmentally friendly nature and compliance to both local and internationally standards were also favourable considerations.

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Results & Implementation

Samsung SDI proceeded to implement the FirePro fire suppression solution since it combined all the operational, environmental and technical considerations required for the ESS containers. FirePro Korea personnel designed and completed the installation of the FirePro system and fire extinguishing generators within a predetermined time frame. FirePro systems currently protect these assets and offer protection against various fire scenarios.

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MANAGEMENT SYSTEM CERTIFICATION
DNV
ISO 9001 = ISO 14001
Reinventing
Fire Suppression