



FOGTEC[®]
BESS PROTECTION

THE SMARTER WAY OF PROTECTION



FOGTEC BESS PROTECTION

**Off Gas Detection • Explosion Prevention
• Fire Suppression**

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FOGTEC Green Protection

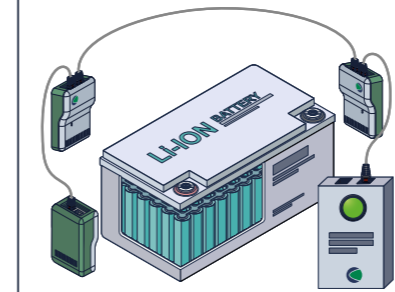
- 100% eco friendly
- 100% pure water / nitrogen
- 100% of components recyclable

Battery Venting Gases

- are toxic
- are flammable
- are EXPLOSIVE!

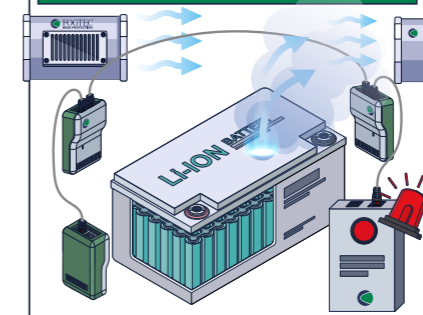
THE FOGTEC PROTECTION CONCEPT

GAS DETECTION



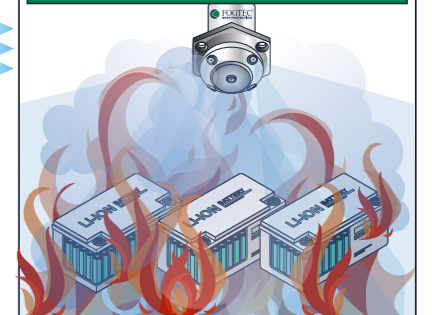
- Detection of Battery Off-Gassing
- Early Detection of Thermal Runaway

EXPLOSION PREVENTION



- Active Venting
- Avoid Explosive Gas Concentrations
- Prevent Deflagration

FIRE FIGHTING



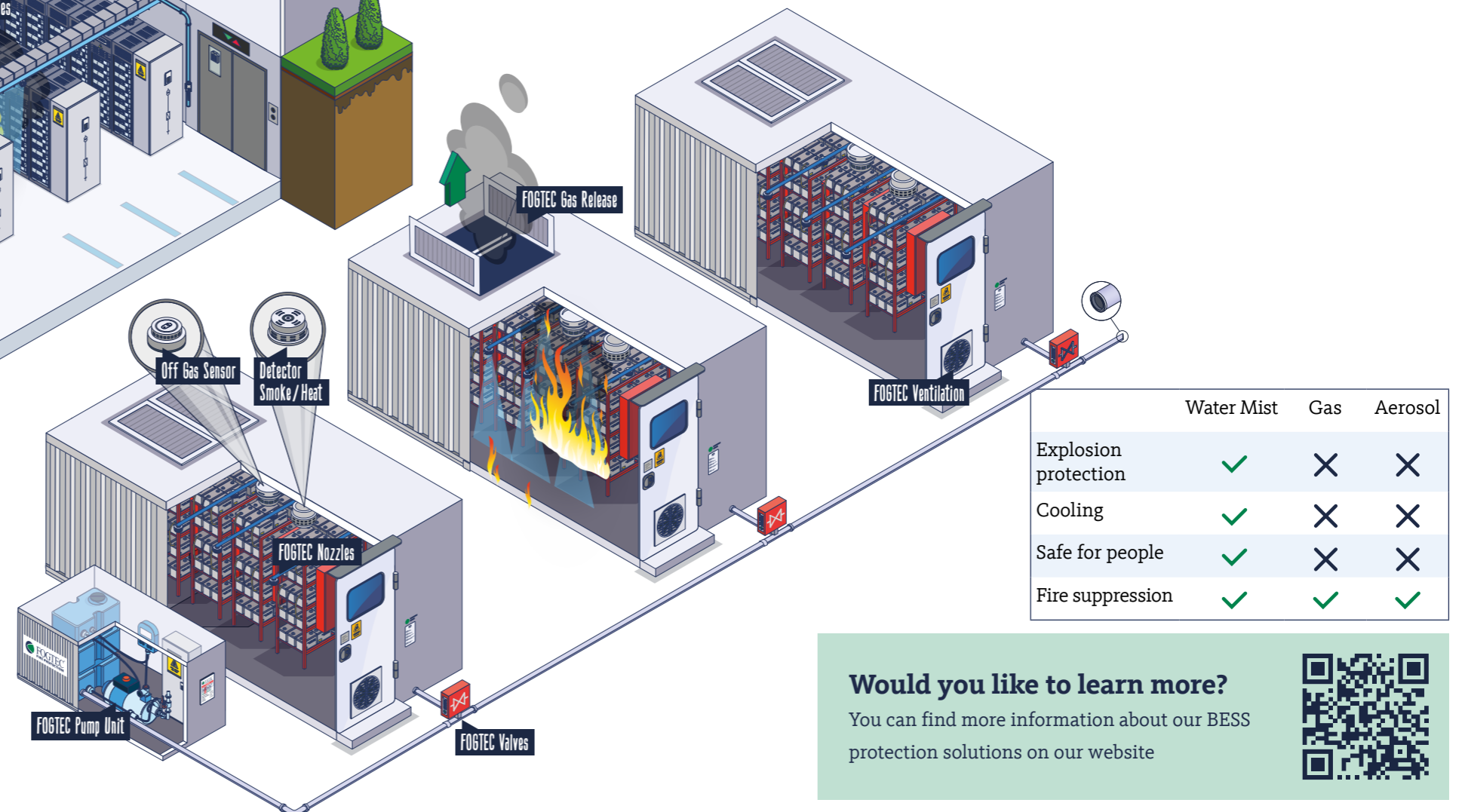
- High Pressure Water Mist
- Minimal Water Usage
- Highest Cooling Effect

FOGTEC Detection

- Highly sensitive and easy to maintain
- Detection of smoke, venting gases, temperatures, electrolytes ...
- Smoke aspiration systems and point sensors
- Based on fire tests as part of SUVEREN and SUVERENzuse

FOGTEC Water Mist

- High Pressure (smallest droplets)
- Minimal water usage
- No pre warning time required
- No harm to people
- Works with ventilation
- Reduces smoke particles and acids
- Limits negative effects of venting gases
- Unlimited running time
- Easy installation / small components
- Low maintenance cost
- One pump unit for up to 200 BESS-Units
- FOGGUN for manual use optional



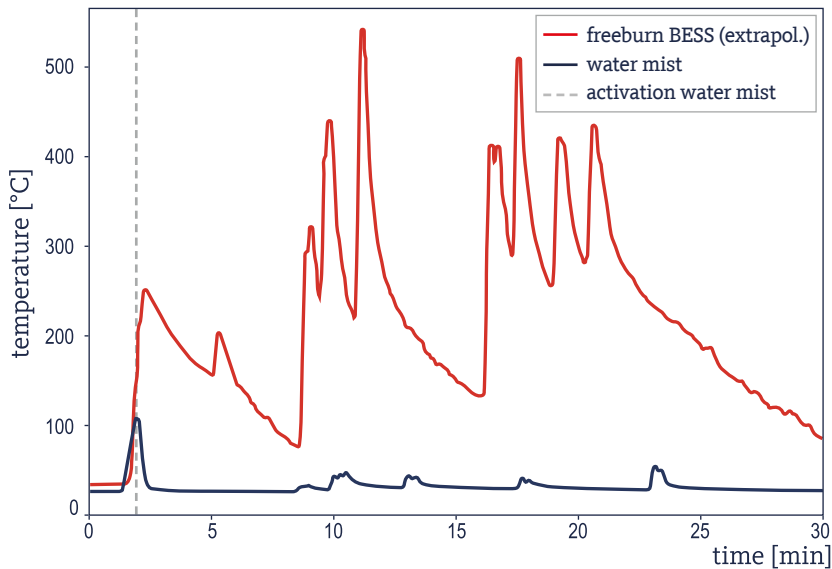
	Water Mist	Gas	Aerosol
Explosion protection	✓	✗	✗
Cooling	✓	✗	✗
Safe for people	✓	✗	✗
Fire suppression	✓	✓	✓

Would you like to learn more?

You can find more information about our BESS protection solutions on our website



Ceiling temperature of BESS-Container during full size fire test



SUVEREN Storage is a research project based on the results of the research projects SUVEREN and SUVEREN2use. See for details www.SUVEREN-NEC.info



Detection, ventilation and explosion prevention:

During the early phase of a malfunction of a battery cell already smallest amounts of off-gases are generated. To detect these, highly sensitive FOGTEC sensors are used. A signal from the FOGTEC controller to the battery management system promptly shuts down all battery activities, to stop the warming up of the affected battery cell(s). At the same time, ventilation openings are automatically opened and / or mechanical ventilation is started to avoid the accumulation of explosive off-gases in the BESS. This significantly reduces the probability of an explosion. Information from the battery management system may be used to give additional information to the FOGTEC controller.

Why High Pressure Water Mist for BESS:

High pressure water mist is particularly suitable for fighting battery fires due to its high cooling effect. The spread of fire is controlled by cooling. No pre-warning time is required, firefighting can be started without any delay. Smoke and flammable gases released during battery fires can be ventilated out while the high pressure water mist fights the fire and cools the enclosure. There is no need for a sealed room at any time. This prevents the accumulation of explosive gases. Therefore, the risk of explosions is minimized.

How Water Mist works:

In the event of a fire, high-pressure pumps supply pure water through small stainless steel pipes to special nozzles positioned in the BESS. The nozzles produce extremely fine droplets with an average size of 50 to 100 microns. Compared to e.g. much larger sprinkler drops, these have approximately a 100 to 200 times greater water surface area, over which energy of the fire is quickly absorbed. At the same time, these droplets bind smoke particles and wash out water-soluble particles as well as toxic gases. Only minimal amounts of water are used and therefore water damage and the production of contaminated water is reduced to a minimum.



Certificate to EN 14972



Expert Report

Who we are:

FOGTEC is an ecotechnology research and manufacturing company focusing on sustainable technologies in the field of fire safety. With more than 40 system partners worldwide FOGTEC is protecting lives and assets on all 7 continents.

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