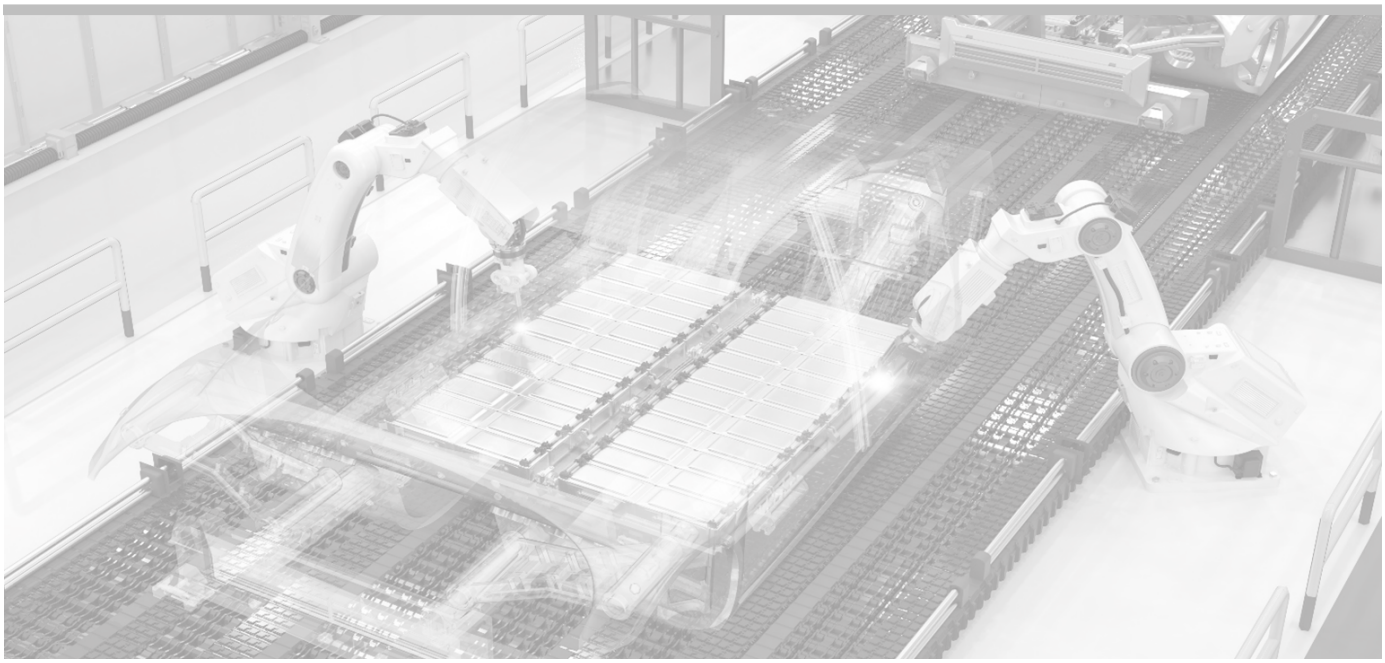
ULTIUM BATTERY FACTORY CASE STUDY



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Ultium Battery Manufacturing Plant

A joint venture between an American auto maker and tier 1 OEM battery manufacturer has deployed one of the largest lithium-ion battery manufacturing plants in the USA, in Northern Ohio. The facility is the first of several that will be deployed across the USA to support the production of batteries for electric vehicles (EVs). The plant exclusively mass-produces millions of large-format pouch cells and has a targeted production capacity of 36.7 GWh[1].

The manufacturing facility consists of multiple processes as the raw materials are fabricated into finished cells; however, the areas of focus for Li-ion Tamer are near the completion of the production process, once the cells have taken their final form factor, specifically in the jig formation and charge/discharge processes. The jig formation process is where cells develop their SEI (solid electrolyte interphase) layer, which plays a critical role in cell lifetime, performance, safety and stability. The charge/discharge process involves further cycling of the cells to enhance performance. There are 2 areas for each process, with 5 lines per area, for a total of 10 jig formation and 10 charge/discharge lines.

Each jig formation line is monitored by 6 Li-ion Tamer GEN 2+ controllers, 57 monitoring sensors, and 15 reference sensors. Each charge/discharge line is monitored by 10 controllers, 98 monitoring sensors, and 12 reference sensors. So, a total of 160 controllers, 1550 monitoring sensors, and 174 reference sensors are deployed at this battery manufacturing facility to enhance protection and reduce down-time by providing early warning of battery gas generation. Li-ion Tamer is used to disconnect the batteries from the charging units and remove them via an automatic storage and retrieval system (ASRS) for isolation.

Li-ion Tamer is a recognised safety solution for the protection of lithium-ion battery installations. The Li-ion Tamer system provides the earliest possible warning of imminent battery failures by detecting the off-gas phase that occurs early in the failure mode of lithium-ion batteries. An alert to a battery off-gas event enables proper mitigation steps to be taken at an early stage to avoid progression to the most catastrophic phase (Thermal Runaway) which can pose serious threat to occupants' safety and damage assets/ property resulting in loss of production capacity (downtime).

[1] https://www.ultiumcell.com/our-locations/warren-oh

www.xtralis.com

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