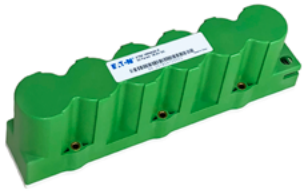
Use case
XTM - 18



Eaton supercapacitors deliver reliable power for warehouse automation

According to an SCMR review, automation is an effective way for warehousing companies to reduce long-term costs while boosting return on investment (ROI). Industry Week reports that 60% of global companies plan to implement partial automation using new technologies to augment human labor at their warehouses.

Warehouse automation machines include robots and automated pallet movers used extensively in warehouses, storage facilities, and manufacturing plants to pick, transport, and place pallets at various locations within a building.

Secondary (Li-ion) batteries conventionally used in warehouse automation machines pose several challenges for reliability and efficiency in this area. While they have a high energy density, they have a short operating lifespan (a maximum of 1 – 3 years: less than 1000 full-cycle lifespan with constant usage), relatively slow charging times, and suffer degradation with wide variations in temperature.

Eaton supercapacitors are well-suited for warehouse automation, particularly in indoor applications like pallet movers or other devices with electric propulsion systems.

Eaton's XTM-18 supercapacitor module is a high power density solution with millions of charge/discharge cycles. They are capable of delivering reliable power over an operating life up to 20 years*. Each module comprises six XT 3.0 V cells offering 61.7 F in total and peak power of 3.7 kW, delivering sufficient power for low-level lifting and acceleration performed by material handling machines in several industries.

XTM-18 supercapacitors can withstand temperatures from -40 °C (sub-zero temperatures obtainable in food processing and breweries) up to +85 °C (above the ambient temperature in most warehouses and storage facilities). The electric double layer construction (EDLC) and low ESR of the XT cells allow for ultra-fast charging (typically under 60 seconds), making them particularly beneficial in machines that perform regular and repeated operations.

OEMs can achieve customizable sizing for a wide range of applications with the low-profile, modularized nature of the XTM-18, which has the same footprint as Eaton's XVM-16 supercapacitor module at the highest voltage ratings (18 V working voltage and 19.8 V surge voltage).

Powering Pallet Movers

Recognizing these benefits, one of the largest global material handling OEMs has integrated Eaton's compact modules. The standard system uses three modules in series to incorporate into a 48 V distribution system. Depending on the individual system and project, additional strings of modules are paralleled to meet heavier weights or longer distances than standard systems, providing easy scalability.

XTM-18 supercapacitors provide simple 'plug-and-play' installation with internal wiring, minimal maintenance, and no external battery management system required.

*Supercapacitor lifetimes vary based on charge voltage and temperature. See Eaton's application guidelines or contact your local Eaton sales representative for more information on lifetime estimates

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com/electronics

www.eaton.com/supercapacitors

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