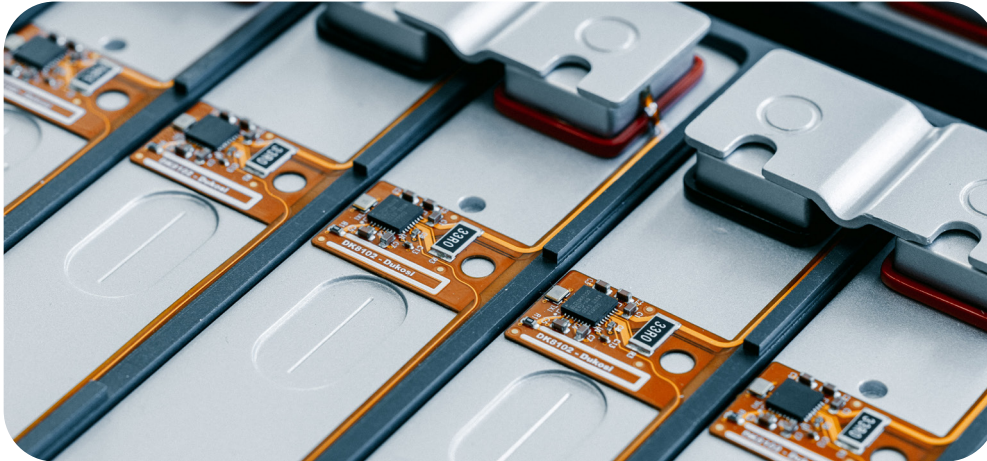


Tech Brief



Chip-on-cell monitoring solution for optimal battery management



The Dukosi Cell Monitoring System (DKCMS) consists of DK8102 Cell Monitors, a DK8202 System Hub, and the Dukosi API. The Cell Monitors make accurate, synchronous, on-cell measurements, process the data, and send it to the BMS main processor (Host) via the System Hub. Dukosi's proprietary C-SynQ[®] communication protocol provides bidirectional communication between the System Hub and the Cell Monitor network, which is managed by the System Hub and Dukosi's API.

Applications



Electric Vehicles



Battery Energy Storage Systems



Industrial Transportation

Key Benefits

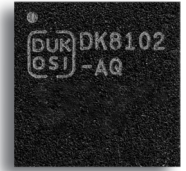
- Enables design flexibility and scalability
- Optimized performance
- Highest safety standards
- 24/7 monitoring and event logging
- On-cell lifetime traceability



What is C-SynQ[®]?

C-SynQ[®] is Dukosi's proprietary communication protocol, designed specifically for large networks in safety-critical environments, i.e. large battery packs. It offers robust communication with essential data synchronization and is configurable up to 216 cells with no additional design overhead.

Tech Brief



DK8102 Cell Monitor

The Cell Monitor is an intelligent device mounted directly on the cell, which integrates sensing and passive cell balancing. It reports to the System Hub using C-SynQ which ensures exceptional immunity to external interference. With inherent electrical isolation and security throughout the near field network, Dukosi's contactless solution delivers wired-like performance and star-network behavior.

Key Features

- Hundreds of Cell Monitors supported in single or multiple integrated networks with System Hubs
- AEC-Q100 (Grade 2) qualified, with ISO26262 ASIL D functional safety attributes and cybersecurity*
- Per-cell, high accuracy voltage measurement with limit checking and fault reporting
- Integrated die temperature sensor for per-cell thermal monitoring, with additional inputs for external thermistors
- Integrated passive cell balancing
- Cell passport with lifetime data and event logging



DK8202 System Hub

The System Hub manages the bidirectional communication network formed by a system of Cell Monitors, and it interfaces with the BMS main processor (Host) via SPI.

Key Features

- Facilitates inherently electrically isolated communication between the host and the DK8102 Cell Monitor network using the C-SynQ communication protocol
- AEC-Q100 (Grade 2) qualified, with ISO26262 ASIL D functional safety attributes and cybersecurity*
- Adaptive channel hopping, offering industry-leading robustness against interference
- Dukosi's API included for seamless configuration and reporting

*Targeted to be AEC-Q100 (Grade 2) certified and intended for use as a safety element out of context as part of an ISO26262 ASIL D-rated battery management system. The products have independently undergone threat analysis in line with ISO21434.



Dukosi Ltd develops revolutionary technologies that dramatically improve the performance, safety, and efficiency of battery systems, and enable a more sustainable battery value chain. The company provides a unique cell monitoring solution based on chip-on-cell technology and C-SynQ® communication protocol for electric vehicles (EV), industrial transportation and stationary battery energy storage markets.

For more information, email info@dukosi.com or visit www.dukosi.com.