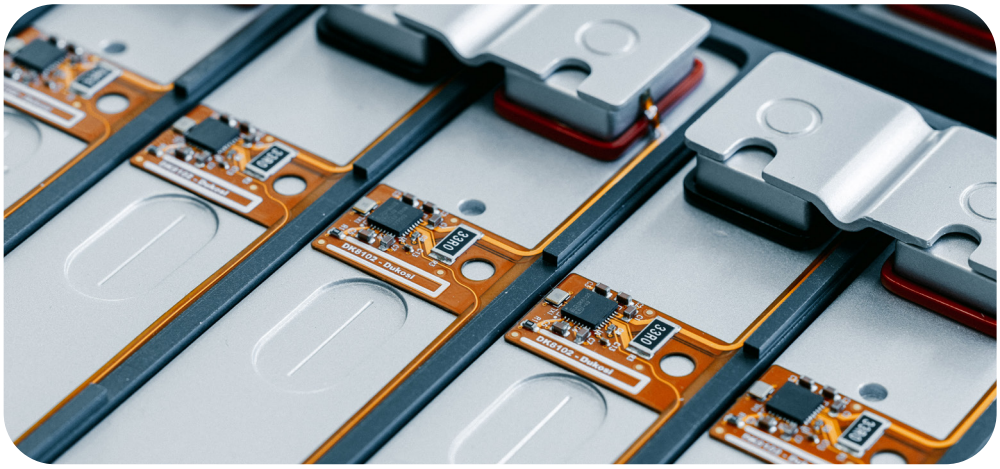
Tech Brief

Chip-on-cell monitoring solution for higher performing smart cells



The Dukosi Cell Monitoring System (DKCMS™) consists of DK8102 Cell Monitors, a DK8202 System Hub, and the Dukosi Library API. The Cell Monitors make accurate, synchronous, on-cell voltage and temperature measurements and send the data with deterministic latency using Dukosi's proprietary C-SynQ® communication protocol to the BMS Host via the System Hub. C-SynQ® provides bidirectional communication between the System Hub and the Cell Monitor network via a single bus antenna using near field RF, which is managed by the System Hub and Dukosi's API.

Applications

Electric Vehicles | Battery Energy Storage Systems | Industrial Transportation | Marine

Key Benefits

- Enables design flexibility and scalability
- Optimized performance
- Per-cell temperature measurement provides higher safety standards
- 24/7 monitoring
- Support for digital product passport

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 deterministic latency. It is configurable up to 216 cells with no additional design overhead.

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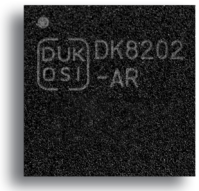
DK8102 Cell Monitor

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

- 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 functionality with on-chip storage of cell data and unique ID
- AEC-Q100 qualified



DK8202 System Hub

The System Hub manages the synchronous capture of cell data and the bidirectional communication network formed by a system of Cell Monitors. It interfaces with the BMS 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
- Adaptive channel hopping, offering industry-leading robustness against interference
- Dukosi's Library API included for seamless configuration and reporting
- AEC-Q100 qualified

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.