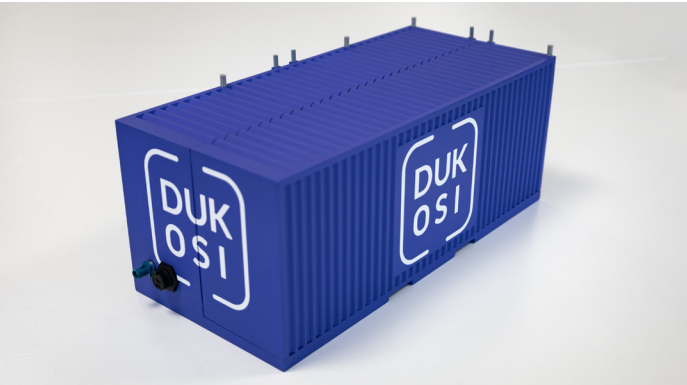
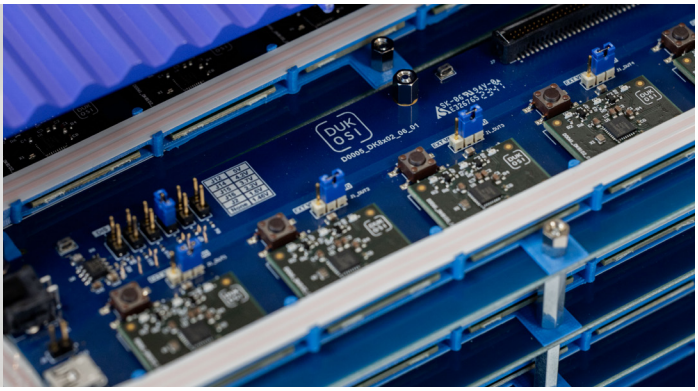
Design Brief

54 Channel Cell Monitor Demonstrator for Battery Energy Storage Systems (BESS)

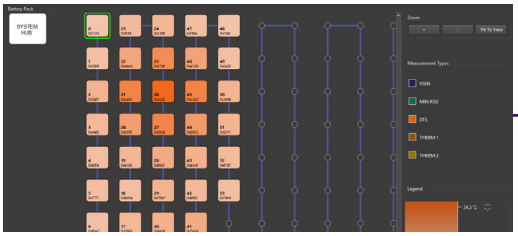




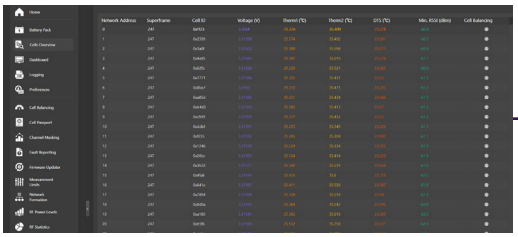
Modeled after a Battery Energy Storage System (BESS) container, this live demonstration exhibits the Dukosi Cell Monitoring System (DKCMS) with 54 Cell Monitors in 4 layers, connected with a single bus antenna looped throughout. This represents a typical battery module configuration suitable for a 900-1500V rack. In this example, the Cell Monitors are not attached to live cells but still send data via near field contactless communications using Dukosi C-SynQ® proprietary protocol to the Dukosi System Hub connected via USB to a laptop. The laptop (not pictured) runs the Dukosi EVK GUI, which enables customers to easily evaluate our solution in their own proof of concept (PoC) designs. The simplicity of DKCMS is echoed in the fact that the Dukosi EVK can be set up, and the GUI running in under 5 minutes.

Dukosi Cell Monitoring System (DKCMS)

- Dukosi DK8102 Cell Monitor
- Dukosi DK8202 System Hub
- Dukosi C-SynQ® proprietary protocol
- Dukosi near field contactless communication



Visual representation of real-time cell temperatures



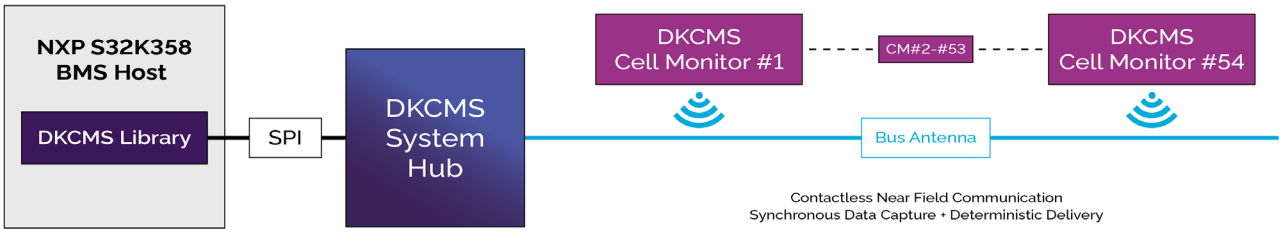
Real-time data stream from every Cell Monitor

Dukosi EVK & GUI

The DK8102 GUI is an intuitive software environment that enables system designers to functionally evaluate the DKCMS. Typically used in conjunction with a DK8x02 Evaluation Kit (EVK) to gain an understanding of the data and options being presented, it can later be used to take the first steps in developing an in-house application using Dukosi technology. It visualizes the battery with real-time data streamed from connected Cell Monitors, which helps to diagnose and optimize settings quickly and easily during early development stages.

Design Brief

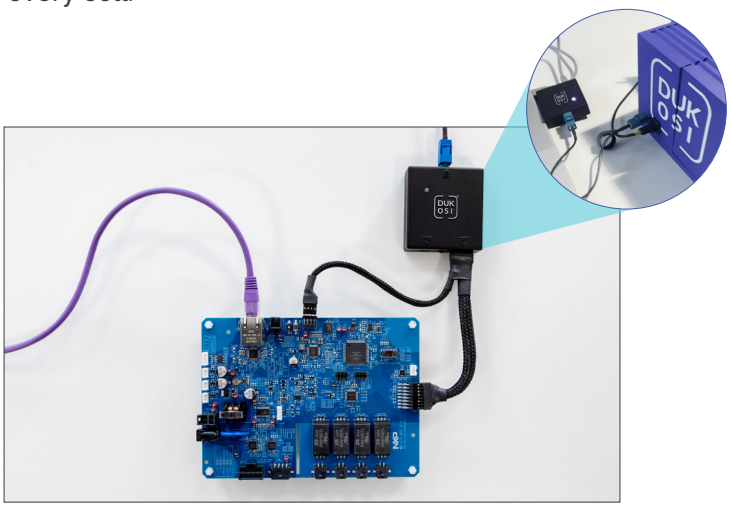
End-to-End BESS Proof of Concept using DKCMS



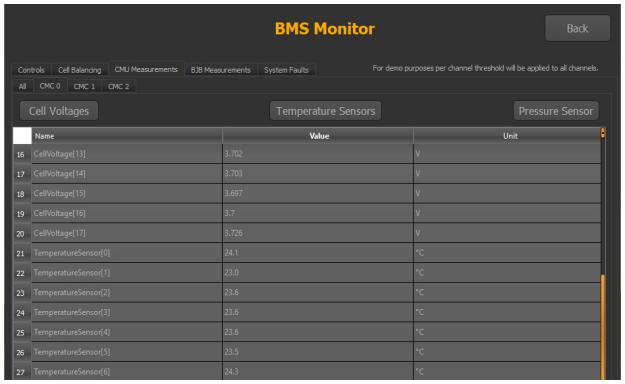
This PoC, developed in partnership with eInfochips, represents an end-to-end BMS design using DKCMS, ready for full-size BESS applications. While the DK8102 Cell Monitors (CM) are not attached to live cells in this model, it still sends data via near field contactless communications using Dukosi C-SynQ® proprietary protocol to the Dukosi System Hub, which is connected to a NXP S32K358 uProcessor BESS Host board via SPI.

The model contains 54 x Cell Monitors in 4 layers networked with a single bus antenna looped throughout. This number was chosen based on an existing NXP system that uses 3 x 18 channel AFE's (MC33774), and represents a typical battery module configuration suitable for a 900-1500V BESS rack.

DKCMS is adaptable to various BMS host processors, while also exceeding the capabilities of other battery architectures as its Cell Monitors provide best-in class voltage accuracy and temperature datapoints from every cell.



NXP Board with Dukosi System Hub unit



Modified NXP GUI with Dukosi CM data displayed

About Dukosi

Dukosi develops revolutionary technologies that dramatically improve the performance,safety and efficiency of high-power battery systems, and enable a more sustainable value chain.

About Arrow Electronics

Arrow Electronics (NYSE:ARW) sources and engineers technology solutions for thousands of leading manufacturers and service providers.

About eInfochips

eInfochips, an Arrow Electronics company, is a leading provider of digital transformation and product engineering services.

Dukosi

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