Battery Electronics

CMU

Cell Monitoring Unit Sensor

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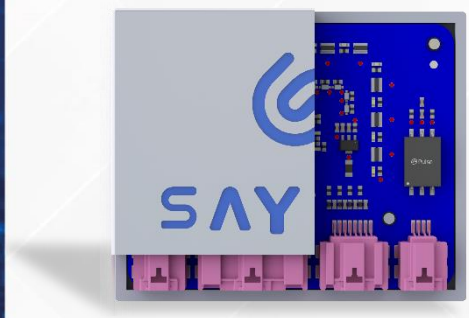
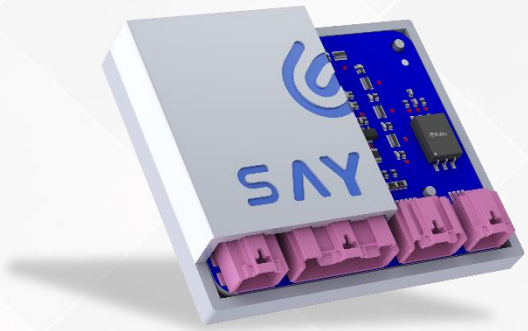
Product Overview

The CMU (Cell Monitoring Unit) is a high-precision device used in battery management systems, designed to monitor battery packs ranging from 6 to 18 cells. The device measures the voltage and temperature of each cell while performing passive balancing between cells to extend battery life and optimize performance.
The CMU includes two ports, Port A and Port B. These ports enable multiple CMU devices to be connected using a daisy chain topology, allowing for secure and fast data transfer across large systems where battery modules are connected in series. Port A and Port B support bidirectional communication, ensuring seamless and accurate data exchange between each CMU in the chain.





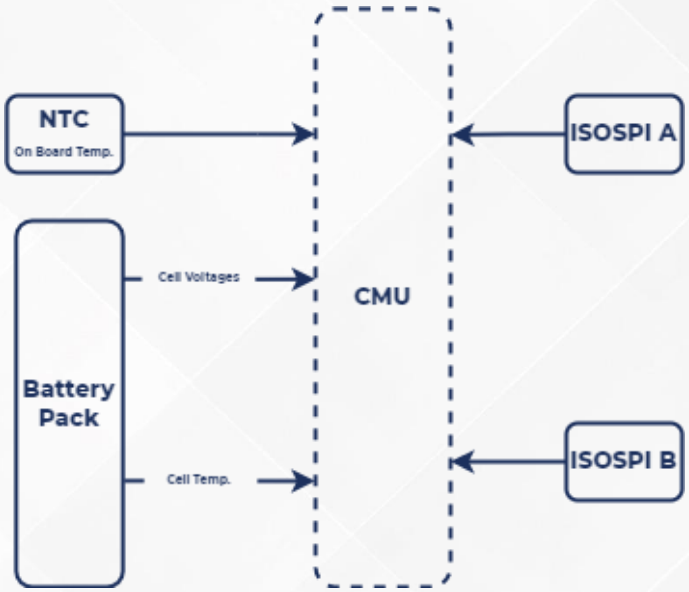
Applications

- Electric vehicles (EV) battery management systems
- Energy storage systems (ESS)
- Industrial battery backup systems
- Renewable energy storage solutions

Features

- Supports up to 18 series-connected battery cells.
- ±0.04% max error for individual cell voltage measurement.
- Integrated passive cell balancing with programmable timers.
- External thermistor-based battery temperature monitoring.
- Low power consumption in sleep mode.
- Daisy chain communication with up to 31 devices via two-wire isolated interface (Port A/B).
- High-speed isoSPI communication with built-in CRC for error detection.
- Compatible with 3.3V and 5V logic levels.
- ISO 26262 ASIL D functional safety compliance.
- Built-in diagnostics for cell connections.
- Integrated voltage reference and ADC.
- EMC and EMI compliant.
- Configurable under-voltage/over-voltage protection for cells.

Functional Block Diagram



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