

WE-BMS Transformer for Battery Management Systems

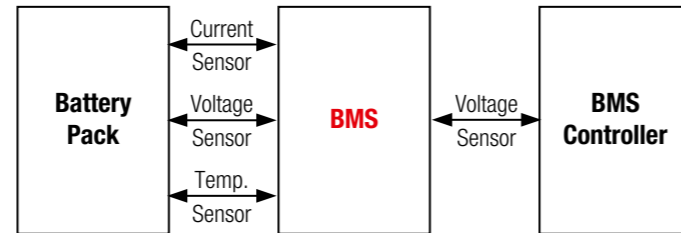
Designed to fulfill the requirements in high voltage operation areas for a safe and reliable BMS



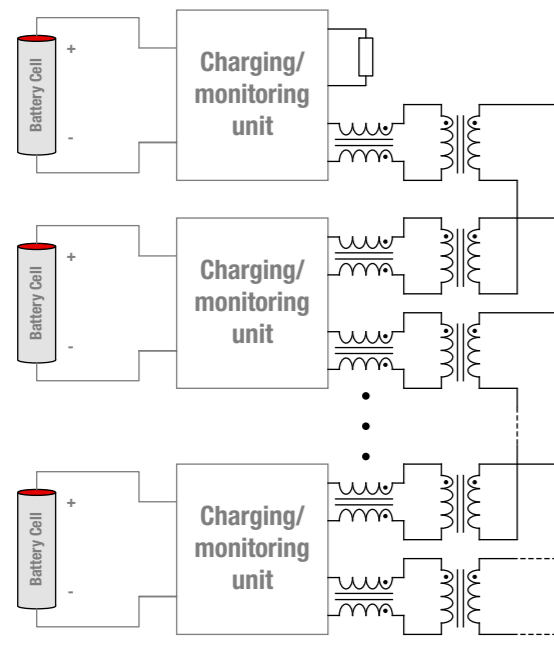
What is a Battery Management System (BMS)?

A BMS is an electronic system that manages a rechargeable battery with the goal to make it safe and reliable.

- Protecting the battery from operating outside its safe operating area
- Monitoring its state of charge and state of health
- Calculating secondary data & reporting that data
- Controlling its environment
- Authenticating it and/or balancing it

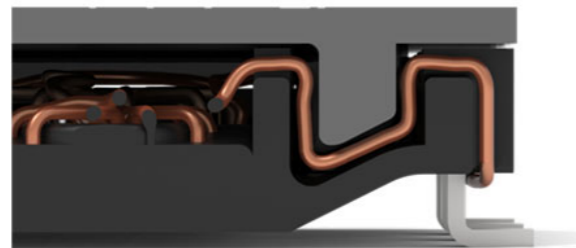
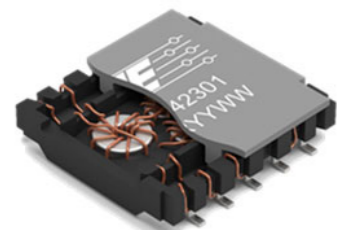


Why is a transformer needed in a BMS?



The individual cells in a battery pack are connected in series as well as the following BMS controllers. Between the components or PCBs connected in series, voltage differences and electromagnetic interference can occur. A transformer can be used to insulate the components from each other and suppress EMI interference. Therefore, WE-BMS transformer supports the BMS isolation and EMI noise suppression for a safe and reliable operation.

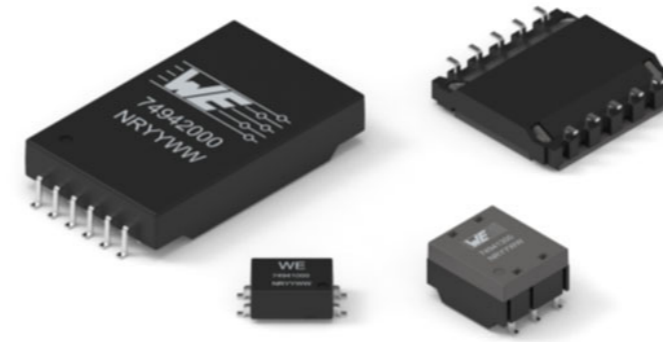
Innovative component design for best performance



The main difference between the WE-BMS transformer and the parts of our competitors is that WE can meet the creepage distance requirements through physical distance.

The creepage is the shortest distance between two conductive parts, measured along an insulating surface. As opposed to competitors, the required creepage distance is achieved without an additional coating exposed to ambient conditions such as dryness or heat. The WE-BMS transformers offer the highest physical creepage distance, increasing the safety and reliability of the system, despite the same footprint.

WE-BMS



Features

- Operating temperature -40 °C to + 125 °C
- Working voltage 1000 V_{DC}
- 4300 V_{DC}/ 1 minute High isolation voltage
- Fully Insulated Wire (FIW)
- Low profile designs
- Supports BMS isolation/EMI solutions
- Supports serial Daisy Chain, IsoSPI, SPI and other signal isolation
- AEC-Q200 approval for automotive applications

Applications

- Solar energy storage
- Energy storage systems (ESS)
- Uninterrupted Power Supply (UPS)
- E-mobility

The new WE-BMS series contains a transformer and a common mode choke, in order to filter common mode noise and electrically isolate the signals. The design from Würth Elektronik provides a much higher physical creepage distance than other competitors, following market requirements for this kind of applications.

WE-BMS selection Guide

What is the customer's BMS operation?

- Daisy Chain Multiple PCBs
- Daisy Chain Single PCBs
- Multi Drop
- Others

How many channels are needed?

- One channel (single transformer) →74941..
- Two channels (dual transformer) →74942..

Article no.	Number of channels	Height (max.) (mm)	Hi-pot (V _{DC})	Creepage distance (min.) (mm)	CMC included
74941300	1	5.75	4300	6	Yes
74941301	1	5.75	4300	5	Yes
74941302	1	3.70	4300	10	Yes
74942300	2	5.00	4300	10	Yes
74942301	2	3.70	4300	10	Yes
74942302	2	3.70	4300	10	Yes



For more information about our WE-BMS check our online product catalog www.we-online.com/WE-BMS

Same footprint, higher physical creepage distance!