

VOLRAD ELEKTRONIK

# Battery Management Systems

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**Gökhan ÖZÇETİN**

*Manager, Volrad Elektronik Ltd. Şti.*

# Product Groups



## Battery Management Systems

Active battery management systems with high power charge transfer balancing capability.



## BLDC Motors and Controllers

High Efficiency BLDC Motors & Speed & Motion Controllers



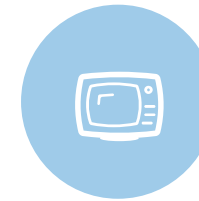
## Grid Monitoring Systems

GSM Based Grid Monitoring Systems  
Full Hardware & Software Solutions



## Dataloggers

Battery Powered Long Life Ambient Condition Data Loggers



## Fuel Cells

Development of PEM Fuel cells



## Power Converters

Application Specific DC/DC Converters

# Key Products



V-ACT

Active battery management systems with high power charge transfer balancing capability.



V-MOTION 250

250 Watt Compact FOC Motion Controller



1 kW Harsh Environment Programmable Multi Mode Step Up/Down Converter



V-HTLOG

Temperature & Humidity Logger

# About Us

## Volrad Team



Gökhan Özçetin

Electronics Engineer  
Project Manager – Electronic Systems  
ODTÜ



Dr. Durmuş Uygun

Electrical Engineer  
Project Manager – Motors  
GAZİ ÜNİ.



Dr. Serdar Erkan

Chemical Engineer  
Project Manager – Fuel cells  
ODTÜ



Ogeday ÇAPAR

Nanotechnology Engineer  
Project Coordinator  
Anadolu Üni.



Cihan Arda

Electronics Engineer  
Hardware Engineer  
Çankaya Üni.



# Battery Management Systems

## BATTERY MANAGEMENT SYSTEMS

### KEY FEATURES:

- Daisy Chainable Battery Management Module
  - 6 Cells / 2 Temp. Sensors Per Module
  - Up to 8 Hall Effect Current Sensors
  - Up to 100 Cells In Series
  - Up to 8 Parallel Strings
- High Accuracy Cell Parameter Monitoring
- SOC Data Extraction via Test Curves
- CHARGE TRANSFER CELL BALANCING THROUGH PACK
  - Bidirectional Balancing
  - 5A Balancing Current
- CANBus Interconnection
- MODBus Data Monitoring
- Ethernet / Wi-Fi Remote Interface

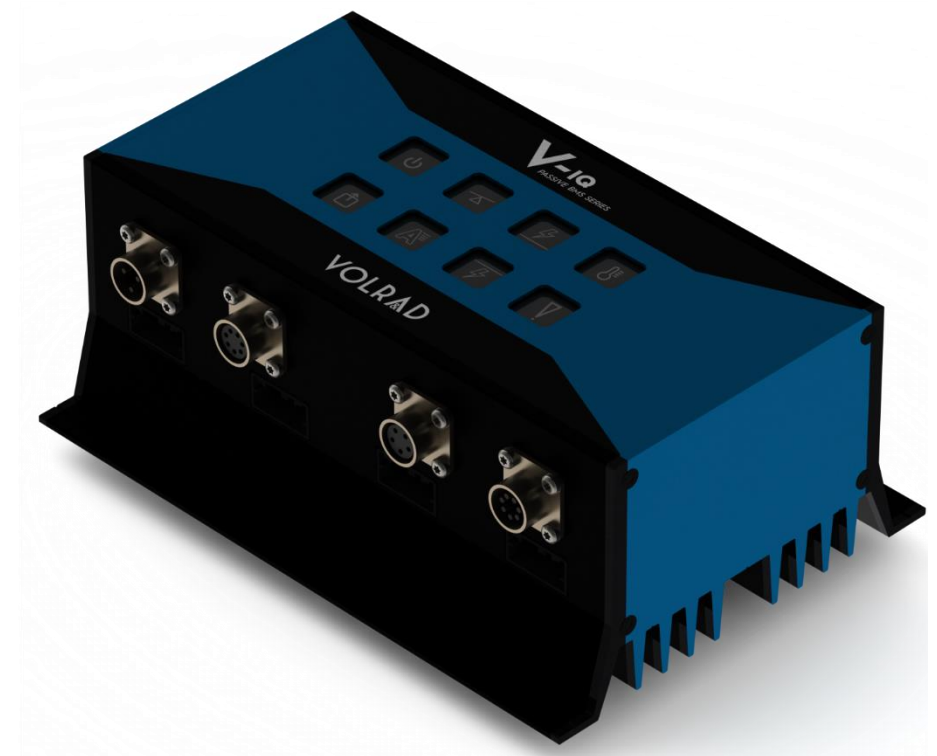


# Battery Management Systems

## BATTERY MANAGEMENT SYSTEM

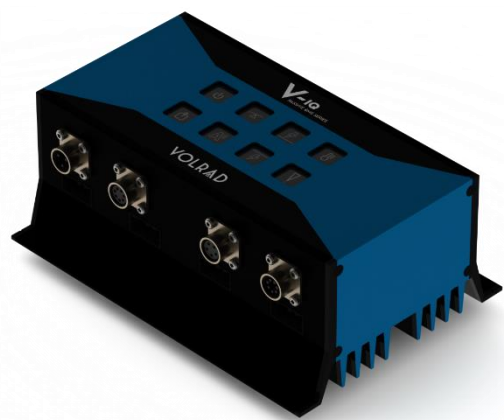
### ADVANTAGES:

- MODULAR SYSTEM
  - Applicable to custom battery packs
  - Can be distributed on site, reducing cabling
  - Decreased High Power Cabling
- ACCURATE MONITORING
  - Safe Cell Monitoring
  - Programmable Protections
- SOC & SOH Estimation
  - Estimation via Test Curves & Coloumb Counting
  - Easy Programming of Cell Parameters
- CHARGE TRANSFER CELL BALANCING
  - Fast Balancing for High Capacity Cells
  - Preservation of Pack Capacity
  - Reduced Thermal Dissipation



# For More Details

[www.v-bms.com](http://www.v-bms.com)



**Thank You!!!**

