Battery Voltage Supervisor Capacity Model

BVS CM

- Efficient analyzer for battery discharge testing
- Automated cell voltage and intercell connection voltage measurements
- Detection and notification of failing cells
- Reliable and easy to operate
- Detailed test analysis and reporting provided using DV-B Win software

Description

The Battery Voltage Supervisor Capacity Model (BVS CM) is a battery monitoring system for real-time data gathering and viewing.
The BVS CM main role is monitoring battery voltage values during a battery discharge testing.
The BVS CM is an integrated system consisting of:

- BVS Control Unit (BCM-CU)
- Cell Voltage Modules (CVM-C)

The BCM-CU performs monitoring and measurements data acquisition from the CVM-C modules and their transfer to a PC. In addition, the BCM-CU provides power supply to all connected CVM-C modules.
The cell voltage modules are installed on the individual batteries, performing battery voltage and intercell voltage measurements.
The BVS CM system acts as an add-on to the Battery Load Unit (**BLU)** series of devices while performing a battery discharge test, providing detailed analysis of an individual cell's condition.
The BVS CM system identifies a potential battery malfunction by monitoring the following cell parameters from an array of the cell voltage modules CVM-M:

- Cell voltage
- Intercell connection voltage

In addition, the BCM-CU provides ambient temperature measurements on multiple locations.
The CVM-C modules detect cells that fail a discharge test based on measured voltage values, so these cells can be safely removed from the battery string.
Data acquisition and extensive analysis capabilities of data collected from the CVM-C are available in the DV–B Win application software suite, providing a user data viewing, tracking and generation of comprehensive reports.

Applications

The list of the instrument applications includes:

- Real time cell condition assessment by monitoring, collecting and recording cell and intercell voltages from the set of the CVM-C modules during a battery capacity (discharge) testing
- Real time ambient temperature measurement with the BCM-CU unit
- In combination with the Battery Load Unit (**BLU)** instruments:
  - Internal resistance measurement
  - Short circuit current estimation
- Detailed data trending and analysis provided using DV-B Win software

BVS CM Connection Diagram

In the BVS CM implementation, every CVM-C module is installed directly on an individual battery. Failure of one of the CVM-C modules will not affect communication between the rest of operating CVM-C modules and the BCM-CU. The connection diagram of the BVS CM to a battery string is presented in the figure below.

Connectivity diagram of BVS CM system components in combination with Battery Load Unit device

Features and Benefits

Extensive cell analysis during discharge

Using the BVS CM as a supplement to the Battery Load Unit (BLU) devices provides multiple advantages during a battery discharge testing.
The CVM-C modules measure voltage values in real-time mode and forward recorded data to the Control Unit in user defined intervals selected through DV-B Win application software UI.
All out-of-tolerance measurement values are announced by a LED signalization on an individual CVM-M module, so the failing cells can be detected before endangering the entire battery system. This enables detecting and safely bypassing the failing cell during a discharge process.
Up to 4 ambient temperature measurement channels are provided on the BCM-CU for measuring ambient temperature on multiple locations.

Battery Internal Resistance Measurement

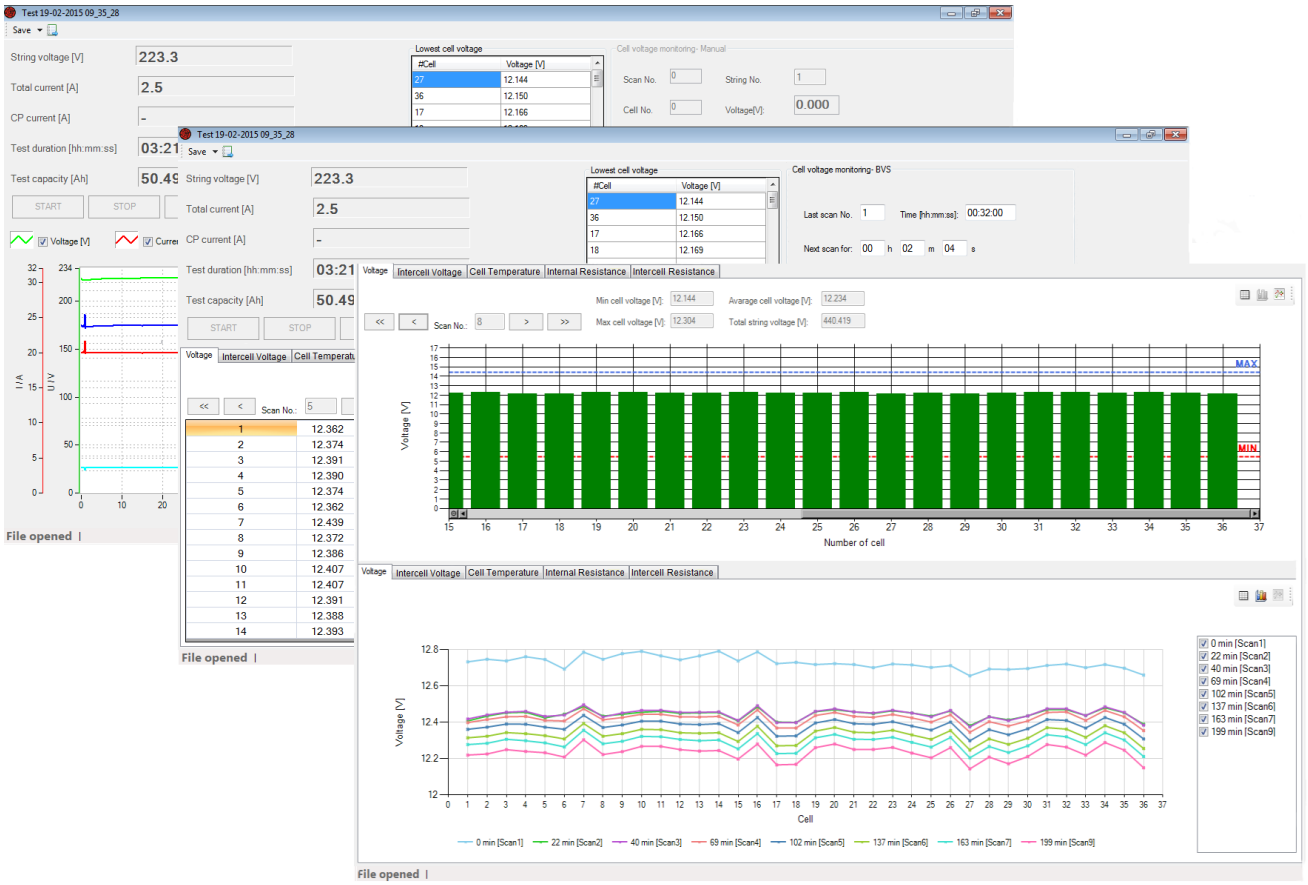
The battery internal resistance measurement is an additional BVS CM feature available in combination with the BLU instruments, along with the intercell connection resistance measurement and the battery short circuit current estimation. The test method used for internal resistance measurement and a short circuit current estimation is specifically designed to comply with battery test methods recommended by the IEC standards.

DV-B Win Software

All results transferred from the BVS CM system can be viewed, analyzed and presented in selectable report forms by using the DV-B Win software application.
Data can be transferred to a PC through a USB or Bluetooth communication.
Both, the BVS CM and the BLU device provided results can be viewed on the same report form.
A quick pass/fail test for a cell internal resistance values may be performed based on a user defined thresholds, adding additional insight in an individual cell’s status.

DV-B Win Main Features

- Full control of the BVS CM from a PC
- Both discharge results from BLU device and cell voltage values from CVM-C can be previewed in one DV-B Win file
- Acquisition and detailed analysis of measured data
- Cell voltage, intercell voltage and internal resistance trending
- Test report for BLU and BVS CM are available in several formats (Excel spreadsheet, pdf, word or RTF)
- User selected sampling time of CVM-C and BLU device



DV-B Win features: String View (BLU) & Cell View (BVS CM) functions

Technical Data

Mains Power Supply

- Input voltage: 90 – 264 V AC, 50/60 Hz
- Input power: 110 VA
- CVM-C supply voltage: 24 V DC

Measurement

- Voltage:

	Measuring range	Resolution
Cell Voltage	±30 V DC	1 mV
Intercell connection Voltage	±10 mV DC	1 µV

Typical accuracy:

±10 mV; ±30 V DC:

± (0,1% rdg + 0,1% F.S)

- Temperature:

  - 20 °C - +80 °C / -4 °F - +176 °F

BCM-CU and CVM-C communication

- RS485 serial communication

Communication with PC

- USB
- Bluetooth

Memory

- Internal SD Card: 2 GB SD

Environment conditions

- Temperature:

  -40 °C to +85 °C /-40 °F to +185 °F

- Maximum relative humidity:

  95 % for temperatures up to 31 °C/88 F, decreasing linearly to 40 % relative humidity at 55 °C/131 F

Dimensions and Weight

- Dimensions (L x W x D):

  BCM-CU: 206 mm x 180 mm x 64 mm

  8.11 in x 7.08 in 2.51 in

  CVM-C: 66 mm x 28 mm x 139 mm

  2.6 in x 1.1 in x 5.5 in

- Weight:

  BCM-CU: 0,78 kg / 1.7 lbs

  CVM-C: 0,14 kg / 0.3 lbs

Warranty

- Three years

Applicable Standards

- Pollution degree: 2
- Insulation category: II
- Safety: EN 61010-1, LVD 2006/95/EC

  IEC 61010-1 (International standard)

  UL 61010-1

  CAN/CSA-C22.2 No. 61010-1, 2nd edition, including Amendment 1

- Electromagnetic Compatibility (EMC)

  CE conformity: EMC standard EN 61326-1:2006

  EMC directive 2004/108/EC

All specifications herein are valid at cell temperature of + 25 °C and recommended accessories.
Specifications are subject to change without notice.

Ordering Info:

Instrument with included accessories
Battery Voltage Supervisor BVS CM: System of Control Unit BCM-CU and CVM-C*
DV-B Win PC software including USB cable
Voltage sense cables for connection of CVM-C to battery 2 x 0,25 m**
NTC thermistor*** for ambient temperature measurement**
Communication cable for CVM-C 1 x 0,5 m**
Power supply cable
Auxilliary sense cable for first module

Optional Accessories
Cell voltage module CVM-C
Calibration system for CVM-C
Bluetooth module

** Number of CVM-C may vary depending on application*
*** Different cable lengths available upon request*
****Different types of temperature sensors available upon request*

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