ZVD Series

Zero Voltage Discharge Module

- BLU external modules for pre-recycling battery discharge
- Voltage range: 0,0 – 1350 V DC (ZVD1350)
  0,0 – 800 V DC (ZVD80 & ZVD120)
- Enable complete (down to 0 V) discharge prior recycling
- Constant current discharge:
  - up to 60 A (ZVD80, ZVD1350),
  - up to 120 A (ZVD120)
- Efficient battery discharge on low voltages
- Universal – applicable to discharge any type of batteries

Description

Zero Voltage Discharge Module ZVD Series are external modules enabling full battery discharge (down to 0 V). ZVD is designed to operate in a system with a BLU unit (BLU-A, BLU-T, BLU-C or BLU-D unit), providing complete discharge of batteries with voltage up to 800 V DC (**ZVD80 and ZVD120** model) or 1 350 V DC (**ZVD1350**).

The total battery discharge is very important in the battery recycling process. Due to safety reasons, battery needs to be completely discharged before entering the recycling process. The battery can contain some remanent energy, which can create problems during disassembling of a battery or even during its transportation. In order to prevent that, we created the ZVD module enabling controlled and efficient full battery discharge.

A single discharge down to 0 V will not extract all the energy from the battery. Once the discharge is finished, battery voltage will rise to some non-zero value, indicating there is still energy in the batery. The phenomenon is called the battery voltage rebound.

BLU & ZVD system improves the discharge process by discharging the battery in 2 steps:

Step 1: Efficient (up to 60 A for ZVD80 and ZVD1350) and up to 120 A for ZVD120) and controlled (current is constant untill 0 V is reached) discharge until battery voltage drops to 0 V.

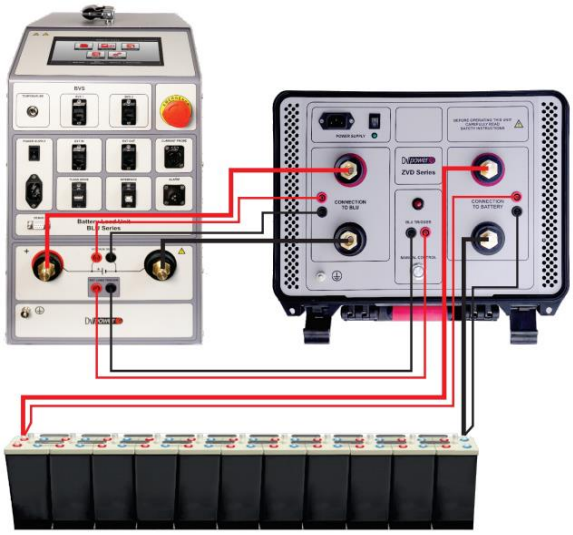
Step 2: ZVD short-circuits the battery to remove the remaining energy.

BLU & ZVD system discharge the battery at constant current (the current value is user-selectable prior the test). Maximum discharge current is 60 A for ZVD80 and ZVD1350 and 120 A for ZVD120. The current remains constant throughout the discharge test (even at voltages ≈ 0 V) which makes the process highly efficient and time-saving. For example, shorting the battery with a resistor is less and less efficient as the voltage decreases.

After ZVD is activated (battery is short-circuited), remaining energy is being discharged on ZVD internal structure. Therefore, BLU can be disconnected from ZVD, removed and used to discharge another battery string. Before removing BLU, it is necessary to press *Manual Control* button on the ZVD.

Connecting BLU & ZVD to Battery

To connect BLU and ZVD to a battery string, two sets of current and sense cable sets are required, as well as one set of trigger cable to initiate ZVD operation (short-circuiting the battery). One set of current & sense cables is used to connect BLU and ZVD, while the other cable set is connected between ZVD and the battery. The BLU displays an appropriate message if cables are not properly connected prior the test. Connecting voltage sense cables to ZVD and to a battery is necessary for proper operation of the system (enabling accurate battery voltage measurement).



BLU & ZVD80 connection diagram

Benefits and Features

- Efficient total battery discharge down to 0 V required before recycling
- Applicable to any battery type: Lead-acid, Ni-Cd, Li-based etc.
- Efficient constant current discharge (up to 60 A for ZVD80 and ZVD1350 and up to 120 A for ZVD120) down to 0 V
- Universal models applicable to up to 800 V DC (**ZVD80, ZVD120**) or 1350 V DC (**ZVD1350**)
- Discharge current can be modified during the discharge
- Manual Control feature – BLU can be disconnected from ZVD while ZVD schort-circuiting the battery
- Test result will be saved in the BLU internal memory and can be downloaded to a USB and transferred to a PC for analysis and report generation

Models' comparison

Model	BLU Compatibility	Voltage / Current	Dimensions* & Weights	Manual Control feature
ZVD80	BLU-A series BLU-T series BLU-C series	0 – 800 V DC 60 A max.	402 x 330 x 169 mm 15.8 x 13.0 x 6.7 in 6,0 kg / 13.2 lbs.	Yes
ZVD120	BLU-A series BLU-T series BLU-C series	0 – 800 V DC 120 A max.	402 x 330 x 169 mm 15.8 x 13.0 x 6.7 in 6,0 kg / 13.2 lbs.	Yes
ZVD1350	BLU-D series	0 – 1350 V DC 60 A max.	402 x 330 x 169 mm 15.8 x 13.0 x 6.7 in 6,0 kg / 13.2 lbs.	Yes

* external dimensions, incl. connectors

Technical Data

Mains Power Supply

- Connection according to IEC/EN60320-1; C320
- Voltage:
  90 V – 264 V AC, 50 / 60 Hz, single-phase

Dimensions and Weights

external dimensions, incl. connectors

Model	Dimensions	Weight
ZVD80, ZVD120 & ZVD1350 (without acc.)	402 x 330 x 169 mm 15.8 x 13.0 x 6.7 in	6,0 kg 13.2 lbs.

Operating voltage range

Model	Range
ZVD80 & ZVD120	0 – 800 V DC
ZVD1350	0 – 1350 V DC

Current range

Model	Range
ZVD80 & ZVD1350	0 – 60 A*
ZVD120	0 – 120 A*

* Available on the entire operating voltage range

Environment conditions

- Operating temperature:
  -20 °C to +50 °C / -4 °F to +122 °F
- Storage & Transportation temperature:
  -40 °C to +70 °C / -40 °F to +158 °F
- Relative humidity: up to 95%, non-condensing
- Pollution degree: 2

Warranty

- 3 years + additional 1 (one) year upon registration on DV Power official website (www.dv-power.com

Applicable Standards

- Electromagnetic Compatibility:
  - Directive 2014/30/EU (CE conform)
    Applicable standard: EN 61326-1
- CAN/CSA-C22.2 No. 61010-1
- Safety
  - Low Voltage Directive:
    Directive 2014/35/EU (CE conform)

    Applicable standards, for a class I instrument, pollution degree 2, Installation category II: IEC EN 61010-1

All specifications herein are valid at ambient temperature of + 25 °C /+ 77°F and standard accessories.
Specifications are subject to change without notice.

Order Info

Instrument	Article No
Zero Voltage Discharge Module ZVD80	BLU-ZVDM80-0
Zero Voltage Discharge Module ZVD120	BLU-ZVDM120-0
Zero Voltage Discharge Module ZVD1350	ZVD-M1500-00

Included Accessories	Article No
Mains Power cable	MPCxxA-xx-00
Ground (PE) cable	CABLE-GND-00

Standard Accessories	Article No
Current cables 2 x 3 m* 25 mm^2 (4 AWG) and sense cables 2 x 3 m with alligator clamps (A4) isolated (*for ZVD80*)	CS-03-25VA4I
Current cables 2 x 3 m* 35 mm^2 (4 AWG) and sense cables 2 x 3 m with alligator clamps (A4) isolated (*for ZVD120*)	CS-03-35VAAP
Current cables 2 x 3 m* 25 mm^2 (4 AWG) and sense cables 2 x 3 m with alligator clamps (A4) isolated (*for ZVD1350*)	CS-03-25VASL
BLU-ZVD current connection cable set 2 x 1 m*, 25 mm^2 (4 AWG) and sense cables 2 x 1 m with banana plugs (*for ZVD80*)	ES-01-25VAM8
BLU-ZVD current connection cable set 2 x 1 m*, 25 mm^2 (4 AWG) and sense cables 2 x 1 m with banana plugs (*for ZVD1350*)	ES-01-25SLM8
BLU-ZVD current connection cable set 2 x 1 m 35 mm2 (4 AWG) and sense cables 2 x 1 m with banana plugs (*for ZVD120*)	ES-01-35VABP
Cable set 2 x 1 m* 1 mm^2 (17 AWG) for ZVD triggering	PO-01-01BPBP
Cable bag	CABLE-BAG-00

Optional Accessories	Article No
Current cables 2 x 3 m* 35 mm^2 (2 AWG) and sense cables 2 x 3 m with alligator clamps (A4) isolated	CS-03-35VAxx
Current cables 2 x 3 m* 50 mm^2 (1 AWG) and sense cables 2 x 3 m with alligator clamps (A4) isolated	CS-03-50VAxx
Current cables 2 x 3 m* 70 mm^2 (2/0 AWG) and sense cables 2 x 3 m with alligator clamps (A4) isolated	CS-03-70VAxx

* Longer cables can be provided on request.

IBEKO Power AB
Lejonstigen 9
181 32 Lidingö, Sweden

Contact
Phone: +46 70 0925 000
E-mail: sales@dv-power.com