

Battery Load Unit **BLU200A**

- Lightweight – only 14,5 kg (32 lbs)
- Instrument max discharge power – up to 20 kW
- Voltage measurement range: 6 - 300 V DC
- Current measurement range using Current Clamp 0 - 1000 A DC
- Easily expandable for more powerful banks using BXL-A extra load units
- Measurement resolution – current 0,1 A, voltage 0,1 V
- Discharge current step – up to 200 A (with step 0,1 A)
- Adjustable alarm and shutdown parameters for preventing excessive discharge
- Detailed test analysis using DV-B Win software



Description

During the power outage many power engineering objects such as power plants, generator excitation systems, should be kept operating on batteries. In order to prolong their life - time and autonomous work, they need to be inspected regularly. It is known that the leading indicator of the battery health is its capacity. Battery capacity should be checked to prevent expensive downtime in the event of a power failure. The best way to test the capacity is to perform a discharge test.

The BLU200A is a Battery Load Unit for measuring battery capacity, based on a state-of-the-art technology, using the most advanced power electronics solutions with coolers and fans integrated into device.

The discharging can be conducted according to constant current, constant power, constant resistance and selected load profile. The BLU200A provides the discharge current with the values of up to 200 A, for 6 – 300 V battery system.

When the required discharge current or power is higher then what is available with one BLU200A device or resistance is lower, up to 10 devices can be connected in parallel. Additionally, the External Load Unit BXL-A can also be used for these purposes. Overview of the maximal currents for several battery voltage ranges with the minimum achievable cell voltage of 1,80V is shown in the table below. Maximum currents available with BXL-A are also shown in the table below.

Battery voltage	6 V		12 V		24 V		48 V		60 V		110/120 V		220/240 V	
Min-Max voltage (V)	5	10	10,5	14,1	21,0	28,2	42,0	56,4	52,5	70,5	91,0	144,0	182,0	288,0
Maximum current (A)	50		100		200		200		120		120		70	
BXL-A maximum current (A)	80 A		160 A		250 A		250 A		110 A		180 A		83/90 A	

Application

The list of the instruments application includes:

- Constant I/Constant P/Constant R operation modes
- Load profile I/P/R operation modes
- Parallel operation applied for higher discharge currents
- Current probe mode which can be used in case the battery has to remain connected to the load
- Adjustable alarm and shutdown parameters for preventing excessive discharge

Connecting BLU200A to a battery

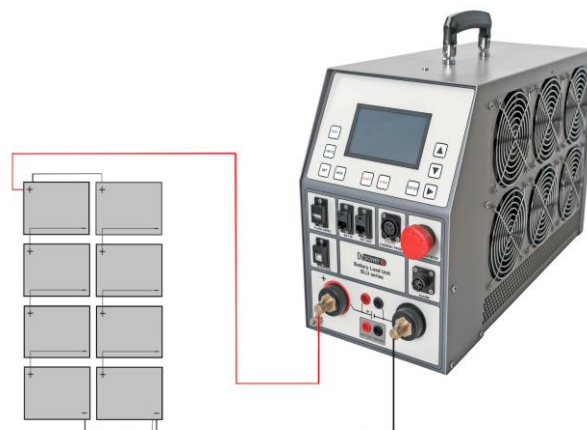
Single mode

Typical application is measuring the capacity and full voltage of the batteries that serve as a backup power supply in:

- Power plants
- Generator excitation systems
- Substations
- Protection and control systems

Using two sets of cables, the device can be connected to any battery test object. Connection to the battery is made by the current and voltage sense cables (optional).

After connecting the battery the current and the voltage alarm levels are set. After starting the discharge, BLU200A keeps the test current, resistance, or power constant. When voltage drops to a level close to the final voltage, BLU200A generates an alarm.



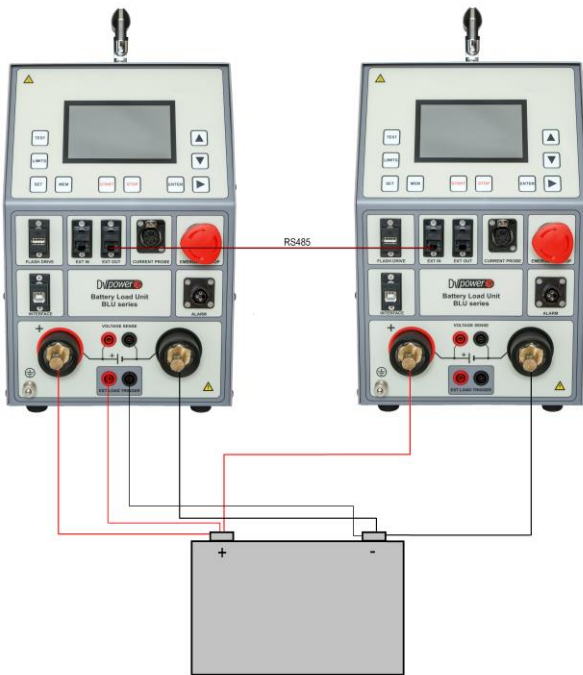
All the readings taken at the end of the test are stored in the BLU200A memory. Using the DV-B Win software these readings can be transferred to a PC for storage, printout or additional analysis. If the PC is connected to BLU200A a test can be performed and controlled from a user's PC and the results can be provided directly on the PC.

Parallel discharge test mode

In case the required discharge current or power exceeds the capacities of a single BLU200A device, several (up to ten) devices can be connected in parallel.

Connection between BLU200A devices is established by using Ethernet ports and RS485 communication. The communication is based on a MASTER-SLAVE principle with one device being always MASTER and all the others are SLAVE units.

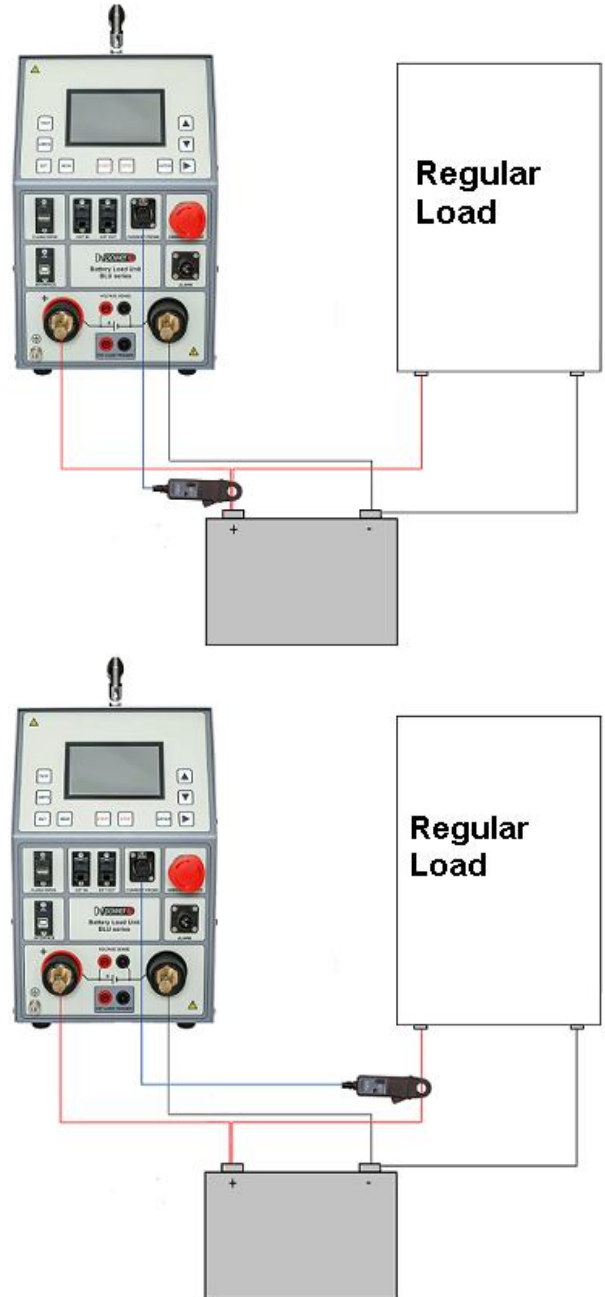
The following figure presents a connection of two BLU200A devices for a parallel discharge test mode.



Current Probe mode

In case the battery has to remain connected to the load, or BXL-A is connected to the battery, the test needs to be carried out using the Current Probe CP MODE

In this mode the measurement will be based either on the total battery current or a load current being measured by the DC current clamp. The current clamp positions for both modes are illustrated in the figures below.



Features

1 - Display - 4.3" color touch screen display

4 - External input (EXT IN) and external output (EXT OUT) - used for Master and Slave connection

3 - Flash drive - used for transferring BLU200A memory data into an external memory stick

7 - Interface - used to connect an external computer if required.

9 - Current and Voltage terminals - current and voltage test cable terminals

11 - Protective Earth Connector - protective earth connector used to connect to protective ground (PE)

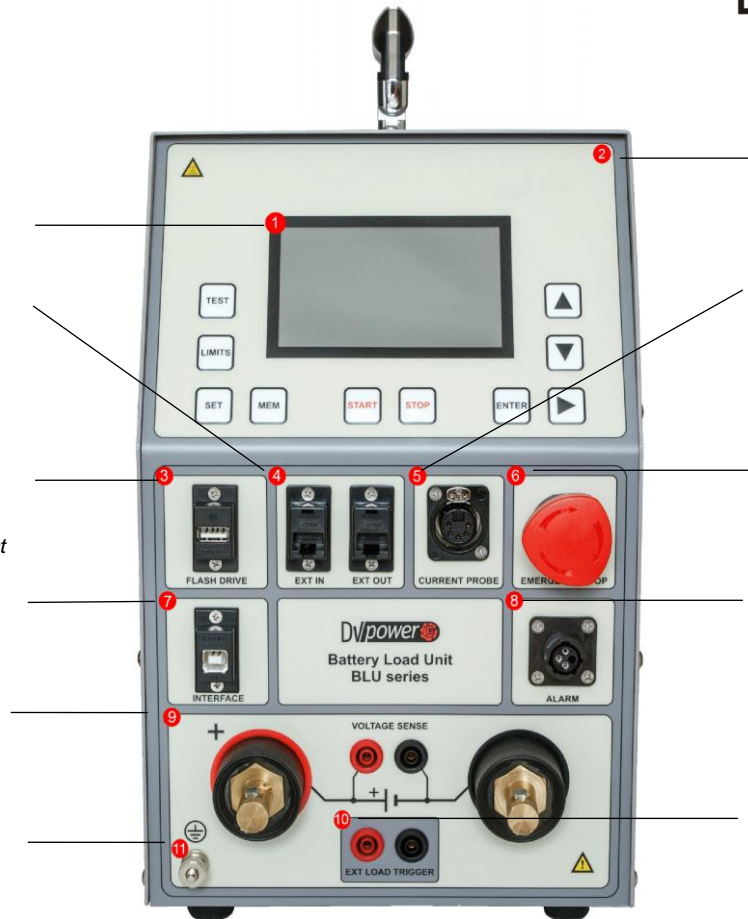
2 - Keyboard - used for controlling and operating the instrument.

5 - Current probe - measuring load current using the external current clamp.

6 - Emergency STOP button - used when unexpected or unwanted action occurs.

8 - Alarm output - used for triggering external alarm buzzer.

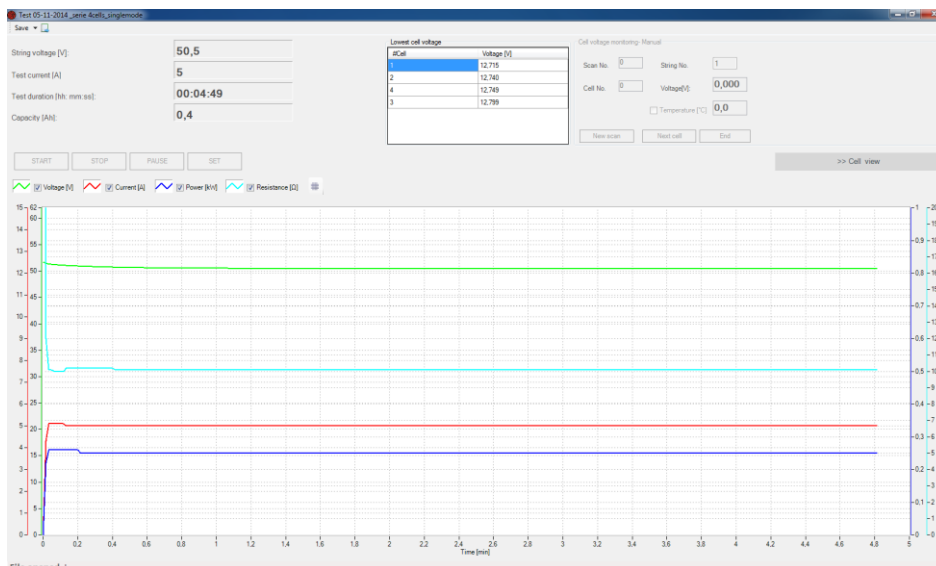
10 - External Load trigger - used for triggering external load



DV-B Win Software

Using the DV-B Win software a test can be performed and observed from a user's PC, and the results can be saved directly on the PC. Communication between the BLU200A and the PC is normally achieved through USB cable. Using DV-B Win the results can be arranged and printed for a report in a selectable format as an XLS, PDF, Word, or RTF format. Also, the possibility of importing other types of data format

(jpg, png, doc) into standardized DV-B Win report is provided, as well as exporting the numerical and graphical results from DV-B Win into customizable report. Additionally, the software provides a possibility of setting extra parameters (cell voltage, string voltage, capacity and time) for alarming and ending the test.



Technical Data

Mains Power Supply

- Connection according to IEC/EN60320-1; C320
- Voltage:
90 V – 264 V AC, 50 / 60 Hz, single-phase
- Input power: 200 VA
- Fuse 2 A / 250 V, type F
- Maximum relative humidity 95 % for temperatures up to 31 °C, decreasing linearly to 40 % relative humidity at 55 °C
- Pollution degree: 2

Measurement

	Measuring range:	Resolution:
Voltage	5 - 300 V DC	0,1 V
Internal current	0 - 220 A DC	0,1 A
Current with		
Current Clamp	0 - 1000 A DC	0,1 A

- Typical accuracy:
Voltage: $\pm 0,5$ % of reading $\pm 0,1$ V
Current: $\pm 0,5$ % of reading $\pm 0,2$ A

Environment conditions

- Temperature:
-10 °C to +45 °C / 14 °F to +113 °F

Dimensions and Weight

- Dimensions (D x W x H) without handle:
560 mm x 217 mm x 355 mm
22 in x 9 in x 14 in
- Weight: 14,5 kg / 32 lbs

Warranty

- Three years

Applicable Standards

- Installation/overvoltage: category II
- Pollution: degree 2
- Safety: LVD 2006/95/EC (CE Confirm)
EN61010-1
- EMC: Directive 2004/108/EC (CE Confirm)
Standard EN 61326-1:2006
- CAN/CSA-C22.2 No. 61010-1, 2nd edition,
including Amendment1

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



Voltage sense cables



Current cables



Extension cable



Transport case



Current clamp 30/300 A



Current clamp adapter with banana connectors

Order Info

Instrument with included accessories	Article No
DV-B Win PC software including USB cable	BLU200A-N-00
Battery Load Unit BLU200A	
Transport case	
Mains Power cable	
Ground (PE) cable	

Recommended	Article No
Current cables 2 x 3 m 35 mm ² (9.84 ft, 2 AWG) with alligator clamps (A4) isolated	C2-03-35VA4I
Cable bag	CABLE-BAG-00

Optional	Article No
Sense cables 2 x 5 m (16.4 ft) with banana plugs + dolphin clip	S2-05-00BPDC
Sense cables 2 x 10 m (32.8 ft) with banana plugs + dolphin clip	S2-10-00BPDC
Sense cables 2 x 15 m (49.2 ft) with banana plugs + dolphin clip	S2-15-00BPDC
Extension cables 2 x 5 m 35 mm ² (16.4 ft , 2 AWG)	E2-05-35VA3I
Extension cables 2 x 10 m 50 mm ² (32.9 ft , 1/0 AWG)	E2-10-50VA3I
Cable for parallel operation	CABLE-PRL-00
Current clamp 30/300 A power supplied from the instrument with extension 5 m	CACL-0300-06
Cable for external alarm	CABLE-EXA-05
Extension cable for external alarm 5 m	E1-EXABLU-05