

## BAR Series

### Battery Active Resistor

- Designed to enable controlled and safe deep discharge of battery packs and modules **down to 0 V DC**
- Eliminates battery voltage rebound
- Performs discharge prior to recycling
- Operating voltage up to **500 V DC**
- Discharge current up to **20 A DC**
- Discharge power up to **230 W\***  
*\*The device operates between 150 W and 230 W, with power adjusted according to internal temperature.*
- Portable standalone product - **5 kg**
- Automatic battery short-circuit when reaching predefined voltage threshold
- Provides temperature-controlled discharge process




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#### Description

Battery Active Resistor **BAR** Series is the DV Power solution for controlled battery discharge down to 0 V DC prior to recycling. Deep discharging battery packs and modules prior to any mechanical processing is essential to ensure safe and secure battery recycling processes. In addition to safety, discharge time efficiency is increasingly critical to making battery recycling economical and sustainable. The BAR series devices are the lightweight solution developed to meet customer's discharge procedures.

**BAR100N** device is specifically designed in accordance with requirements from market leaders within recycling segment to efficiently perform deep discharge of any battery in voltage range up to **500 V DC** and eliminate effect of rebound voltage by short-circuiting a battery.

This device is applicable to any battery type (lead-acid, nickel-cadmium based, lithium-ion, or others) with voltages up to 500 V DC.

The BAR100N device automatically performs discharge tests when connected to the battery, based on an internally defined algorithm. Using this device, the discharge is performed in an accurate, user-friendly way in accordance with relevant standards (IEC EN 61010-1:2010, EN 61326-1:2013).

BAR100N device is designed as portable, standalone product that uses mains power supply for operation. As an additional feature, two or more BAR100N devices can be powered by linking them to a primary BAR100N supplied by mains power. The solution has a highly adaptable architecture, offering integration and flexibility across diverse market requirements.

It is designed to perform battery discharge in 2 steps:

- Step 1: Efficient and controlled discharge until battery voltage drops to 0 V DC using the BLU device as main discharge unit.
- Step 2: BAR continues with discharging and short-circuits the battery to remove the remaining energy and prevents voltage rebound.

BAR100N device provides the temperature-controlled discharge process. This ensures that discharge power is regulated throughout the entire process and adjusted according to the device's internal temperature. The operating discharge power during test is between 150 W and 230 W.

### Connecting BAR to the test object

The BAR100N device can be connected to any battery test object by using a set of current and voltage sensing cables. The red (+) cable should be connected first to the module/pack busbar + terminal following the cable connection of - side. Connection on the device side is enabled through robust Andersson power connector.

When connected to the battery, BAR100N starts discharging by the internal discharge algorithm. At the end of discharge process, when reaching preset voltage value, the device performs short-circuiting of the battery.

Multiple BAR100N devices can be powered on by the first BAR100N device that is connected to mains power supply. In a situation like this, it is possible to connect to 450 devices in a serial supply configuration.

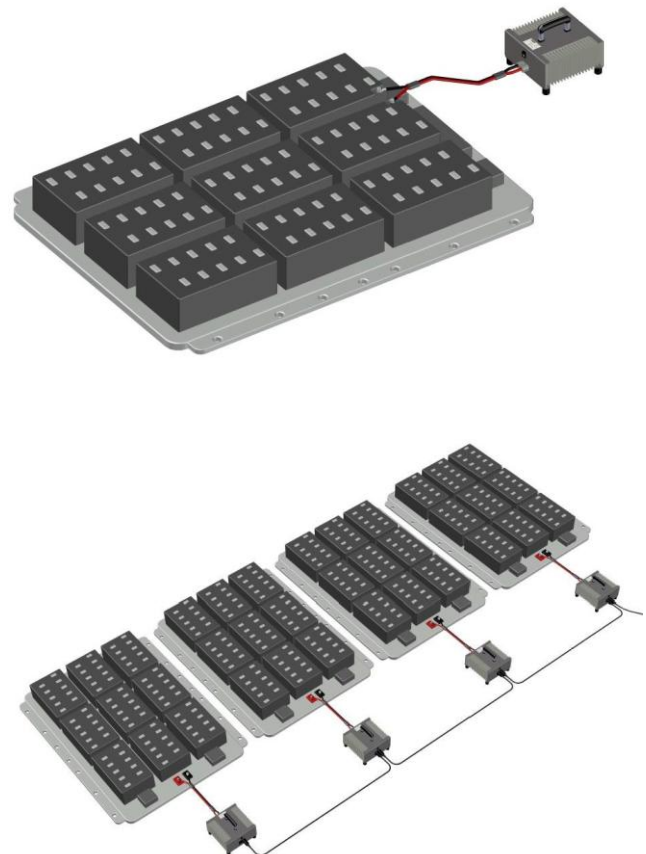
When connecting multiple BAR devices, it is important to power each unit at one time. This means that, except for the first unit, the Power Switch of every BAR unit must be set to position "0" when connecting the first unit to the power supply. Afterwards, switch each BAR unit to position "1" sequentially, one unit at a time.

### Application

Typical application is complete discharge of batteries that have voltage values up to 500 V DC down to 0 V DC. Deep discharge is performed prior to recycling in order to ensure safe recycling process.

BAR100N can be applied to batteries that can be found in (but not limited to):

- Electric vehicles
- Power plants
- Telecommunication systems
- Generator excitation systems
- Substations
- Protection and control systems



## Benefits and Features of BAR units

- **Safety**

A significant factor affecting recycling time efficiency is voltage relaxation, also known as the rebound effect. It is a phenomenon observed in batteries where the available energy at a given time is smaller than the sum of energy consumed and charged. So, while the chemical reactions take place it appears to the load device that all the energy in the battery has been consumed, however after load removal the voltage can recover.

Short-circuiting after the deep discharge is the only way to ensure that voltage remains below safety critical level. BAR100N is equipped with relay that short circuits battery when preset voltage is reached.

- **Flexibility**

Each BAR device can be produced as portable or customized solution for easier integration into the existing discharge stations. In addition, more units can be connected in a serial supply configuration.

- **Performance & Reliability**

Simultaneous measurement of voltage, current, and internal temperature enables maximum optimization of discharge process and power regulation. Discharging process will start with maximum power that will be further regulated based on battery parameters. Once the short circuit voltage limit is reached BAR100N will automatically close the short-circuiting relay.

- **Efficiency**

BAR100N ensures efficient total battery discharge down to 0 V required before recycling. Efficiency is reflected in the internal discharge algorithm, which adapts to the condition of the connected battery and automatically sets the discharge power, as well as the exact moment of short-circuiting.

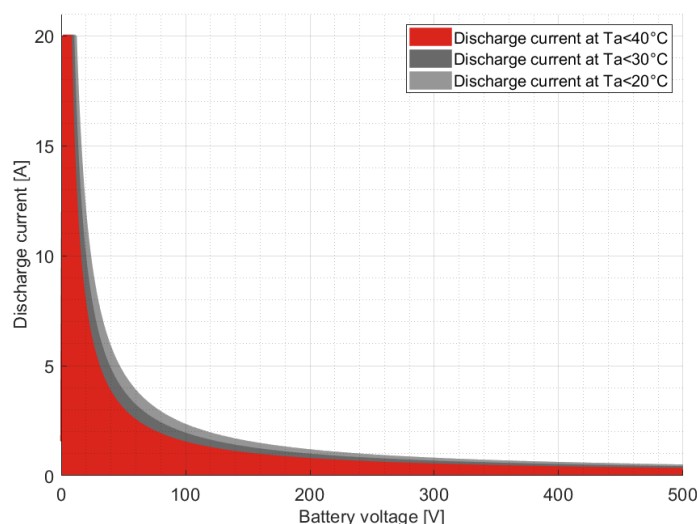
- **Wide range of applications**

This device is applicable to any battery type: Lead-acid, Ni-Cd, Li-based etc. with voltage values up to 500 V DC.

- **User-friendly connecting to the test object**

By using the Andersson connector, the connection between the device and battery is simple, safe and efficient. Furthermore, when the BLU discharge unit is used in the first stage of discharging, and then switched to BAR, this type of connection demonstrates its advantages.

**BAR100N – Maximum discharge current VS Battery voltage**



## 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

Model	Dimensions	Weight
<b>BAR100N</b> (without acc.)	242 x 243 x 196 mm 9.53 x 9.57 x 7.72 in	5 kg 11 lbs

### Current and Voltage measurement

#### Operation current

- Range: 0 – 20 A DC

#### Operation voltage

- Range: 0 – 500 V DC\*  
*\*Recommended for discharging batteries with nominal voltage higher than 12 V DC.*

### Warranty

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

### Environmental conditions

- Operating temperature:  
-10 °C to +40 °C / 14 °F to +104 °F
- Storage temperature:  
-40 °C to +70 °C / -40 °F to +158 °F
- Relative humidity: 0 - 95%, non-condensing
- Altitude: up to 2000 m

### Protection

- Thermal cut-outs
- Overcurrent protection
- Overheat protection

### Encapsulation class / Ingress protections

- IP40

### Applicable Standards

- **Electromagnetic Compatibility**  
- EMC Directive 2014/30/EU  
Applicable standard: EN 61326-1:2013  
Pollution degree: 2
- **RoHs Directive 2011/65EU**
- **Safety**  
- Low Voltage Directive 2014/35/EU  
Applicable standards, for a class I instrument, pollution degree 2,  
Installation category II: IEC EN 61010-1:2010

All specifications herein are valid at ambient temperature of +20 °C / +68 °F and recommended accessories. Specifications are subject to change without notice.

## Accessories



Current cables

Mains Power Cable

Transport Bag



Mains power cable 1m/2m/5m for  
BAR 10 A 250 V

## Order Info

Instrument	Article No
Battery Active Resistor BAR100N	BAR100N-NN-02

Included Accessories	Article No
Transport bag	

Standard	Article No
Current cables 2 x 3 m 25 mm <sup>2</sup> with Anderson Power connector SB120 and M8 ring terminal ( <i>different lengths and terminals upon request</i> )	C2-03-25APM8
Mains power cable EU 10 A	MPC10A-EU-00

Optional	Article No
Mains power cable 1m for BAR 10 A 250 V	MP10A-BAR-01
Mains power cable 2m for BAR 10 A 250 V	MP10A-BAR-02
Mains power cable 5m for BAR 10 A 250 V	MP10A-BAR-05