

BATTERY DISCHARGE UNIT

The BRI discharger is intended for controlled discharge of the chemical battery with an applied direct current.

The controlled battery discharge is carried out in accordance with the guidelines of the producer in a way to allow comparing the measurement results with the factory data. BRI measures the battery's temperature during the battery test discharge, and applies a temperature correction to the measured values.

The device allows remote setting of parameters and reading data using APS6000 (APS Energia SA external protocol) and Modbus RTU communication protocols.

It is possible to connect the dischargers in parallel to multiply the maximum discharge current. The process is fully automatic.

The discharger is equipped in a microprocessor operation and battery state control system.

METHOD OF DESIGNATION OF THE BRI TYPE DISCHARGER

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Device type: BRI - battery discharge unit]
Rated battery voltage range, [V]	
Maximum battery discharge current, [A] Solution depends on the order	
Type of enclosure: CP - portable compact] -

The LCD signals the following:

- battery's voltage;
- battery's discharge current;
- the charge drawn from the battery;
- operation time and the set discharge time;
- the date and time of start and end of the discharge;
- external temperature;
- the measured capacity of the battery including the external temperature.



The discharger view

THE BRI TYPE DISCHARGER – TECHNICAL CHARACTERISTICS – STANDARD PARAMETERS

PARAMETER	VALUE		
DC INPUT			
UBAT output voltage	12 to 400 V	12 to 540 V	
UMAX maximum output current	450 V	545 V	
UMIN minimum output voltage	9 V		
AC INPUT (auxiliary)			
Input voltage	230 V ±10 %		
Frequency of the input voltage	50 Hz ±10 %		
DC OUTPUT			
IzN rated discharge current	50 A	30 A	
PzN maximum power loss	12 kW	16 kW	
IROZ maximum discharge current	If P>Pzn, so Iroz= Pzn / Ubat		
-	if P <pzn, iroz="Izn</td" then=""></pzn,>		
Discharge current stabilisation	<1 %		
Discharge current ripple	<3 %		
Available menu language versions	PL EN CZ RU		
OPERATING ENVIRONMENT			
Operating temperature (EN 50178 class 3k3)	+5 to +40 °C*		
Storage temperature (EN 50178 class 1k4)	-25 to +55 °C*		
Humidity (EN 50178 class 3k3)	5 to 85 % (non-condensing)*		
Access to the device	from the front and the back		
Cable entry	from the back		
Maximum height above the sea level without change of the rated parameters	1,000 m ASL		

* – it is possible to design different parameters upon agreement with the manufacturer.

THE CHARACTERISTICS OF THE BRI TYPE DISCHARGER

The microprocessor controlled BRI type control discharge device is characterised by the following parameters:	 automatic completion of the discharge process after achieving set parameters; low ripple and low level of higher harmonics of the current drawn from the battery; displaying and archiving discharge parameters; remote operation control and readout of parameters (APS6000 and Modbus RTU); compact dimensions and low weight; a mobile design with wheels for easy transport.
The device is protected against:	 overheating; exceeding the maximum permissible voltage.
The discharger monitors the critical structural elements and indicated emergency states:	 damage of the internal temperature sensor; damage of the external temperature sensor; no parallel communication; fan(s) damage; incorrect polarisation of the battery.

THE BRI DISCHARGER USER INTERFACE

There is a control panel console on the front panel of the discharger. The glowing LEDs system and the LCD allows monitoring the operation of the device and reading the measured values.

GOTOWOSC PRACA KONIEC ROZLADOWANIA PRACA RÓWNOLEGLA ALARM	Image: Second
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The controlled discharge process parameters are set via 3-button keyboard and the graphic LCD located on the front panel or remotely through RS485 or USB links. Discharge is carried out until the battery's voltage reaches the set minimum level or until the set discharge time elapses.

The device allows connecting with a master system (e.g., a PC) via the RS485 (connection fields) or USB-B (front panel) links. The user may use two programs: "SAN DIR" and "BRI archive explorer," which communicate using the external APS6000 protocol. By standard, the Modbus RTU industrial communication protocol is also implemented.

Device's communication links:

- RS485 and USB B for communication with a master system (e.g., a PC).
- USB A for copying archival data to a Flash memory drive.



Fig. 42. Block diagram of the BRI type discharger compact.

BRI 110-650 / 20 CP

KEY OF THE ABBREVIATIONS USED IN THE DIAGRAMS IN THE CHAPTER

BAT – battery IN – power supply

SERIES TYPE: BRI TYPE DISCHARGER COMPACTS					
DC rated input voltage, [V]	Rated discharge current, [A]	Example type	Enclosure dimensions*		
from 12 to 400	50	BRI 12-400/50 CP			
from 12 to 540	30	BRI 12-540 / 20 CP	CP		

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* - CP: 400×600×250. (W×H×D).

Special version from 110 to 650



Fig. 43. Views with the dimensions of the BRI type discharge mobile compact:

a) CP compact - top view; b) CP compact - front view; c) CP compact - left-side view; d) CP compact - back view.

