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ENERVIC
Current Balancer made in Russia

ENERVIC Current Balancer PB50A-3P-200ADVRU is a three-phase balancing device that is used in three-phase four-wire low-voltage 0,4 kV distribution networks with asymmetric loads for balancing operating modes of networks. The device reduces losses and improves the quality of electricity for end consumers, reduces flicker and the value of the voltage harmonic distortion KU(3), as well as Balancer increase the value of the short-circuit.

ADVANTAGES:

- Balancing phase voltages and currents
- Reduction of electrical losses
- Reduction of voltage harmonic distortion KU(3)
- Reduction of flicker
- Increasing the short circuit current value (security enhancement)
- Connection to SCADA for network and balancer monitoring
- Easy installation and commissioning

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ENERVIC Current Balancer

product specification

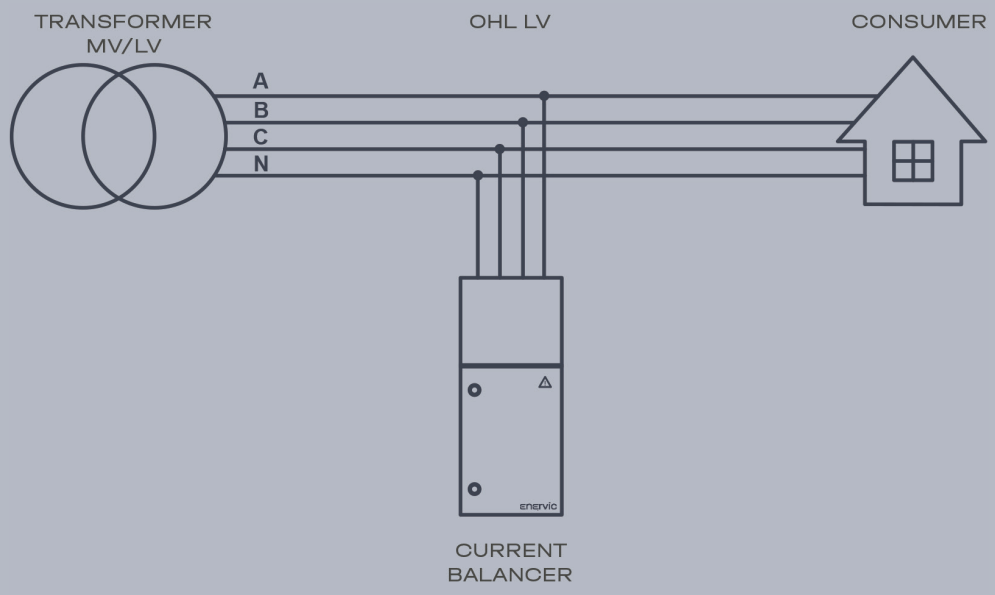
ENERVIC Current Balancer connected to phases and a neutral wire of 0,4 kV distribution network in parallel. The device forms its own current system together with load currents, which provides a symmetrical mode of a distribution network operation.

The product is ready for delivery in advanced version which supports IEC 60870–5–104 data transmission protocol (optional: Modbus TCP, MQTT, IEC 61850 MMS, DNP3), measurement signals and discrete signals transmission to client (utility network company) SCADA, remote control, user-friendly web interface.

RATED PARAMETERS:

	Parameters	Value
1	Modification	PB50A-3P-200ADVRU
2	Rated operating voltage	0,4 kV
3	Rated operating current in neutral conductor	50 A
4	Maximum current in a neutral conductor	100 A
5	Rated network frequency	50 Hz
6	IP	54
7	Ambient temperature range	-60 °C ... +40 °C
8	Relative humidity level	95%
9	Dimensions	H = 1030 mm, W = 405 mm, D = 305 mm
10	Weight	150 kg

CONNECTION TO A DISTRIBUTION NETWORK



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PROTECTIONS

Overheat protection
Balancer is equipped with several types of overheat protection:
- thermal relay (1 pc) with a nominal operating temperature of 100 °C (direct impact on a balancer switch)
- thermal sensors (2 pcs) with a nominal operating temperature of 100 °C (impact on a balancer switch via a controller)

The protection will work and switch off a balancer at 100 °C. A balancer will switch on automatically after cooling the balancer power module to 80°C. Switching inside a balancer will not negatively affect the operation of a distribution network, because a balancer is connected to a OHL (overhead line) in parallel.

Overvoltage protection
ENERVIC recommends protecting balancers with a surge arresters.

Short circuit protection
A balancer equipped with 30 A fuses in cut-off switch.

TEMPERATURE PARAMETERS

The rated steady-state temperature of a balancer power module is 65 °C with the rated current of 50 A in a neutral conductor of a balancer.
The maximum temperature of a balancer power module is 100 °C. The balancer power module reaches a temperature of 100 °C in 30 minutes when heated from 65 °C and at a current of 100 A in a neutral conductor.

COMMUNICATION WITH SCADA

Current Balancer supports IEC 60870-5-104, Modbus TCP, MQTT, IEC 61850 MMS, DNP3 data transmission protocols, measurement signals and discrete signals transmission to client (utility network company) SCADA, remote control.

Measurement signals

- 3 phase voltages
- Current in a neutral conductor
- Network frequency
- Phase voltage angles
- Temperature of a balancer power module (2 independent measurements)

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Discrete signals

- Position of a main power contactor of a balancer (balancer is ON / OFF)
- Protection operation
- Door position

Remote control

- Commands to switch on and off a balancer (impact on a main power contactor of a balancer)

WEB INTERFACE (HMI)

A device has a web interface that allows technical specialists to configure, diagnose and manage a current balancer.

ELECTRONIC POWER SUPPLY

A balancer electronics are protected by fuses, intermediate relays, power phase selection relay.

STANDARTS

There is no product family standard to define the required approval test sequence.

MOUNTING FEATURES

A current balancer can be mounted on a wooden, steel or concrete pole with a rectangular or round shape.

DIMENSIONS AND WEIGHT

The dimensions of a current balancer are H = 1030 mm, W = 405 mm, D = 305 mm.
The weight of a device is 150 kg.

ENVIRONMENTAL IMPACT

A current balancer can be exposed to direct sunlight, rain, snow, ice. The relative humidity level is 95 %.

LIFETIME

ENERVIC informs that the service life of current balancers is 25 years.

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