

# ENSTO

## Ensto Phase Balancer

Corrects unbalanced  
three phase load




**Better life.**  
With electricity.

Ensto Phase Balancer corrects unbalanced loads  
in three phase networks and improves safety.

[ensto.com](http://ensto.com)

# Why Ensto Phase Balancer?



Phase Balancer  
maximizes the  
capacity of  
existing networks

Electricity is a part of our everyday life and consumers use many different electronic devices daily. To function properly electrical equipments require supply voltage that is as close as possible to the rated voltage. Even a few volts change from rated voltage can cause unwanted operation of equipment e.g. higher power consumption.

The international electricity quality standard EN 50160 sets high standards for distribution companies and requires the most reliable and uninterrupted power distribution. Ensto wants to ensure high and consistent-quality power distribution by providing the best possible power quality solutions. Our power quality solutions are maximizing the capacity, safety, and lifetime of existing low voltage grids with cost-effective and fast ways. They are developed and manufactured to represent the latest innovations and demands so that high-quality electricity can be delivered throughout the network.

## Why to choose Ensto Phase Balancer?

Generally, existing networks are lacking behind in the increasing need and consumption of electricity. Power quality standard EN 50160 defines acceptable levels for power quality in low voltage distribution grids. Disturbances like harmonic waves, voltage and frequency variations are rather common. Phase Balancer fixes these unwanted situations. It helps consumers to get better power quality and reduces the number of complaints and sanctions against electricity distribution companies.

## Safe and efficient

The device increases short circuit current, improves protection devices operation time, and reduces unwanted neutral wire current. It corrects unbalanced load in three phase networks and reduces flicker and harmonic content (THD).

## Balanced electricity

Phase Balancer is designed to give you power balance and to be connected in parallel with 3-phase low voltage networks where voltage fluctuations are most frequent. Typical imbalance problem is caused by single phase load that



➤ The Utility Manager permits detailed viewing and controlling of the network

leads to large voltage variations in networks, especially in long lines.

Phase Balancer has been designed to endure harsh climate conditions and still has long lifetime.

Our offer includes two models, standard model (STD) and advanced model (ADV). Both devices offer same functional elements to fix disturbances in low voltage grids. Advanced version offers extra features e.g. grid integrity monitoring and option for communication. Both versions are protected against overloading and will recover automatically without distribution company intervention.

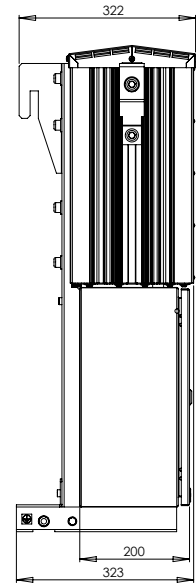
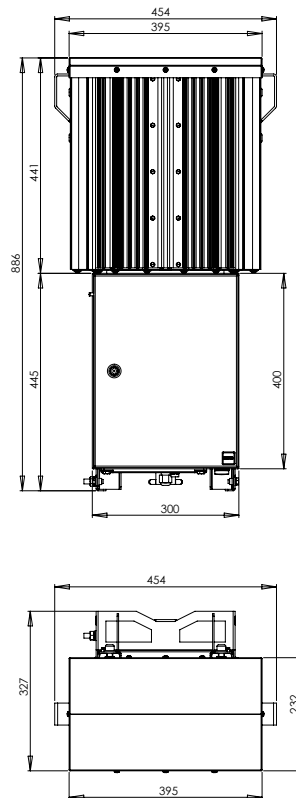
### **Ensto Utility Manager – Preventive maintenance and communication for distribution networks**

Ensto Utility Manager is a cloud-based platform that prevents, controls and locates any possible defects in electricity distribution by analyzing continuous measurement and status information from LVAC Power Quality, Ensto LVDC Microgrid and Network Automation solutions. This reduces interruptions in electricity distribution and declines complaints.

The Utility Manager permits detailed viewing and controlling of the network and its customer interactions, support-

ing billing, site priorities and the development of new services. It connects all the LVAC Power Quality devices to the utility's SCADA.

# Product information



## Technical summary

Feature	PB50A-3P-200 STD/ADV*
Frequency	50/60 Hz
Maximum continuous balancing current @ 40 °C	50A (3 x 17 A)
Maximum short term balancing current @ 40 °C	100 A (3 x 33 A) 10 min.
Voltages up to	440 V
Grounding system	TT/TN
Network	3-phase
Dimensions (H, W, D)	886 x 454 x 323 mm
Weight (kg)	125
Enclosure	IP55

- \*ADV model including:
- Grid state monitoring
  - Overload protection (hardware/software)
  - Operation indicators
  - Connectivity with Ensto Utility Cloud™

## Included accessories

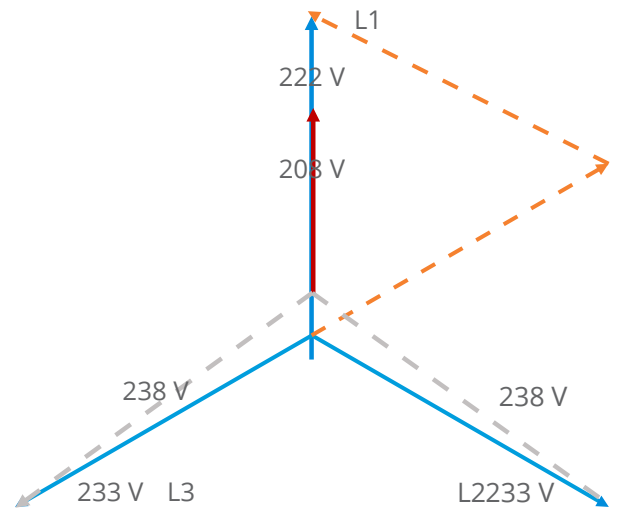


## 6 kW load at 1 km network (0,5 Ω)

Line voltages and currents at the Phase Balancer

Voltages	L1	L2	L3
No load	238 V	238 V	238 V
Load, no balancer	208 V	238 V	238 V
Balancer in use	222 V	233 V	233 V

Currents	Load	L1	L2	L3	Zero
Load, no balancer	22,2 A	22,2 A	0 A	0 A	22,2 A
Balancer in use	23,2 A	16,8 A	6,3 A	6,3 A	4,1 A

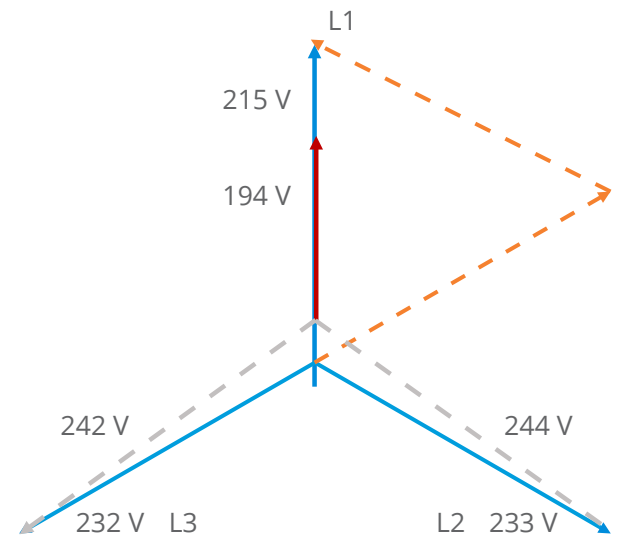


## 10 kW load at 1 km network (0,5 Ω)

Line voltages and currents at the Phase Balancer

Voltages	L1	L2	L3
No load	238 V	238 V	238 V
Load, no balancer	194 V	244 V	242 V
Balancer in use	215 V	233 V	232 V

Currents	Load	L1	L2	L3	Zero
Load, no balancer	37 A	37 A	0 A	0 A	37 A
Balancer in use	40 A	30 A	11 A	11 A	7,3 A

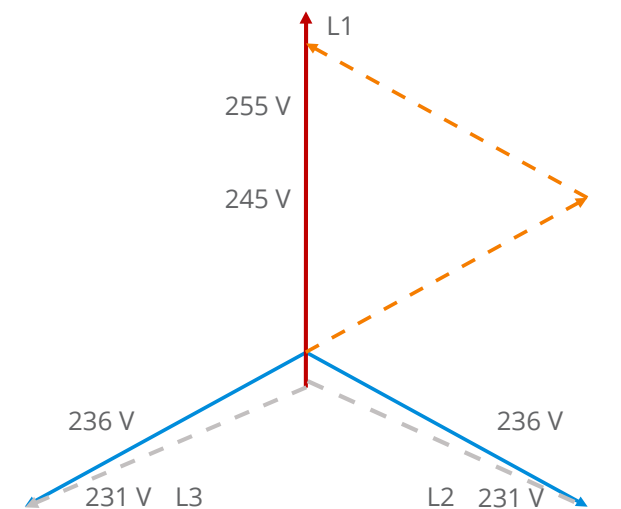


## 5 kW solar inverter at 1 km network (0,5 Ω)

Line voltages and currents at the Phase Balancer

Voltages	L1	L2	L3
No solar supply	235 V	235 V	235 V
Solar on, no balancer	255 V	231 V	231 V
Solar and balancer on	245 V	236 V	236 V

Currents	Solar	L1	L2	L3	Zero
Solar on, no balancer	20 A	20 A	0 A	0 A	20 A
Balancer in use	21 A	15 A	5,6 A	5,6 A	3,7 A





# ENSTO

Ensto Finland Oy  
Ensio Miettisen katu 2, P.O. Box 77  
FIN-06101 Porvoo, Finland  
[utility.networks@ensto.com](mailto:utility.networks@ensto.com)

[ensto.com](http://ensto.com)

