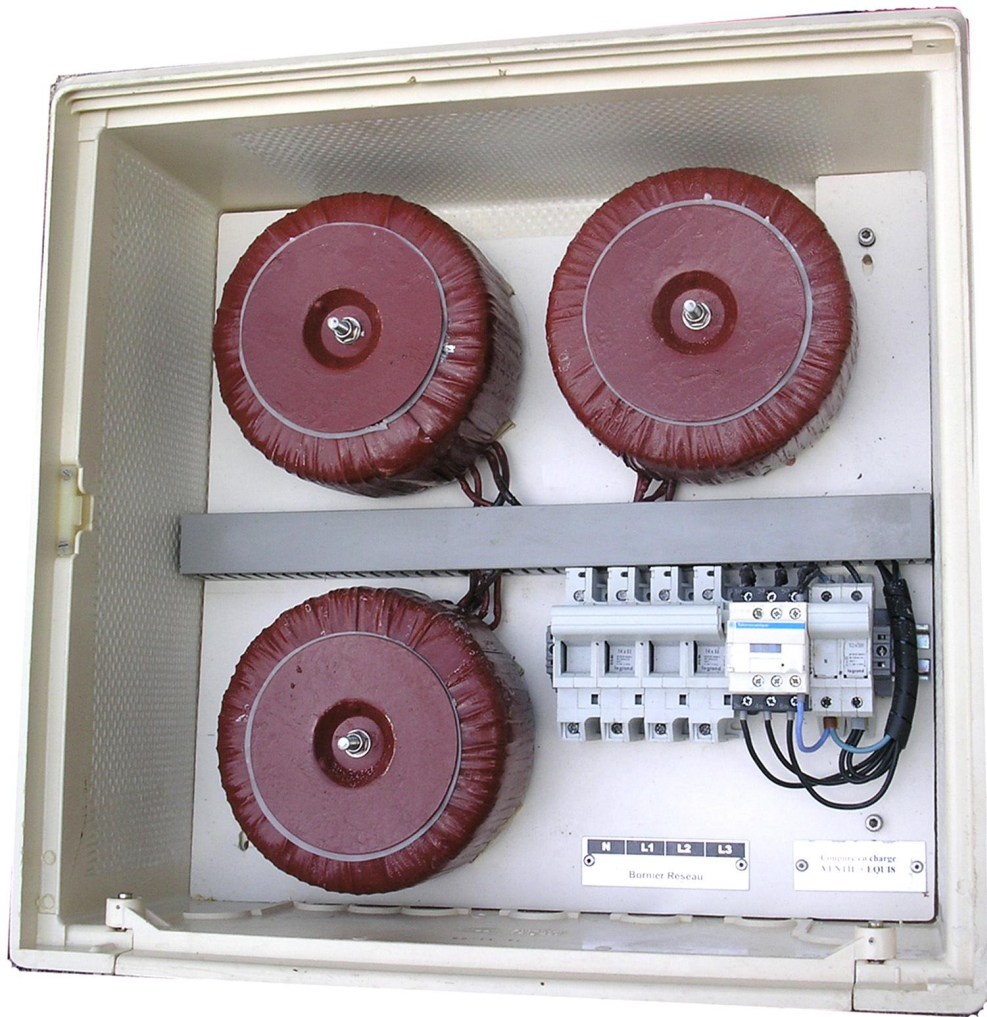


# EQUI8

Three-Phase Low Voltage Network Balancer



Mitigates Voltage Variations  
on LV 3-phase 4-wire Networks





# How it works...

Single phase loads or power injection cause large voltage variations on networks with long lines. This affects voltage quality to an extent ranging from customer complaints to equipment damage. For distributed production, over voltage may force inverters disconnection and result in loss of production with associated contract issues.

EQUI8 is designed to be connected in parallel with the 3-phase 4-wire LV network at the end of the line where voltage variations are their greatest. It creates a low impedance zero sequence path and diverts most of neutral current. This results in a much better phase balance in the upstream lines.

<b>Effect:</b>	under and over voltage caused by single phase loads distant from the feeder are reduced by a factor 2 to 3 depending on the line characteristics.
<b>Typical application:</b>	above 300 meter long LV lines ( $R_{phase+Neutral} > 0.3 \text{ Ohms}$ ), supplying at their end customers with up to 50 kW (consumption) and up to -50 kW (injection) contract power.
<b>Rugged design:</b>	zigzag transformers in a standard polymer enclosure with no sensitive electronic. Withstands harsh climate conditions ensuring long life expectation.
<b>Installation:</b>	quick and easy for 2 operators without cranes or special tools.
<b>Parallel connection:</b>	ensures continuity of supply / no change to existing customer connections.
<b>Cost effective:</b>	avoids LV grid reinforcement, saves time and reduces line losses (by reducing max current)

CME Transmateur provides network calculations and expertise. Please do not hesitate to send us your network data to check the compliance of EQUI8 with your individual needs.

## Case Study

LV Network : 750 m bundled Alu Cable 4 x 70mm<sup>2</sup>

**Power injection**  
5.5 kW

**Load**  
10 kW

**Problem:** due to over voltage caused by high wind conditions and light loads, the wind turbine's inverter used to trip out many times a day, thereby running in the idle state from full load. This caused mechanical damage to the turbine. Also under low wind conditions and high loads, the voltage used to fall under 200 V.

**Solution:** 1 EQUI8 on the closest pole limits the voltage variations between 218 and 242 V. The Customer is satisfied. The Network is now compliant with EN 50160 and able to host up to 5 new customers.

NETWORK	IDLE		PRODUCTION 5,5 kW				CONSUMPTION 10 kW			
			WITHOUT EQUI8		WITH EQUI8		WITHOUT EQUI8		WITH EQUI8	
	I (A)	U(V)	I (A)	U(V)	I (A)	U(V)	I (A)	U(V)	I (A)	U(V)
Turbine L1	0	235	-22	255	-22	242	0	190	0	218
House L1	0	235	0	255	0	242	50	190	50	218
N	0		-22		-4		50		7	
L1	0	235	-22	255	-16	242	50	190	36	218
L2	0	235	0	230	-6	235	0	249	14	234
L3	0	235	0	230	-6	235	0	249	14	234

From HV/LV Feeder

SCALABLE SOLUTION. CAN HANDLE UP TO APPROX. 6 CUSTOMERS AT THE END OF THE LINE.

Current and Voltage measured before and after installation of EQUI8

## Tech. Specification EQUI8

Product Name	EQUI8	Dimension, Weight	D 21 x W 54 x H 55 cm, 53 kg
CME Ref. No.	17300	Network	4-Wire, 3-Phase, 400 V between lines
Max. balanced Current	45 Amp	Environmental	-40°C to 70 °C, 0 to 100%RH Salt Mist (Ka, EN 60068-2-11) Lifespan 30 years
Efficiency	97.7% under load Idle power < 25 W	Mechanical Electrical	IK10, IP34D, Class 2 (EN 61140)

