

Line voltage regulator for low voltage grids Reliable answer to voltage variations

ABB has developed an innovative line voltage regulator that enables an automatic intervention on voltage fluctuations. This reliable and efficient solution is an economically alternative to conventional network expansion, especially for wind and PV applications.



Innovative solution

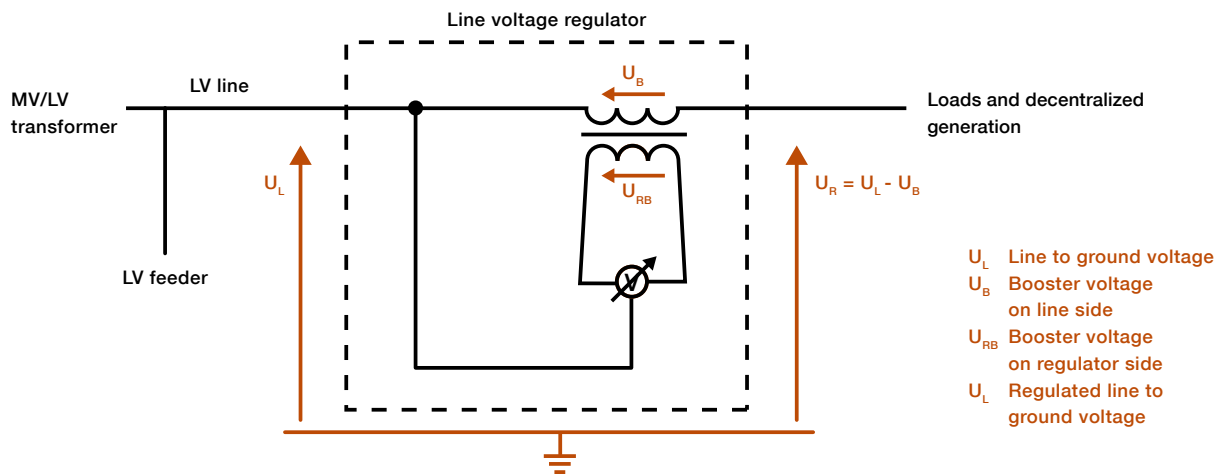
The increasing amount of power generated from renewable resources, especially wind and photovoltaics, has caused changes to the structure of the energy supply. A traditionally centralized system with only a few big power producers has changed into a system containing many small producers, which directly feed into the local distribution grid. This can result in large voltage variations, an increased risk of the voltage exceeding the prescribed voltage range, and the need to limit or even interrupt the renewable generation.

To solve this problem, voltage regulators are needed which act reliably in case of large voltage variations and adjust the voltage to a regular level. The ABB line voltage regulator for low voltage grids solves this problem using a “booster/feeder” technology in combination with mechanical switches. Energy losses are minimal. The voltage regulator is built with powerful ABB components, fulfils the highest environmental requirements, and can easily and quickly be installed thanks to being mounted in a standard cable distribution cabinet.

Advantages at first sight

- Economic solution as compared to grid expansion
- Autonomous voltage regulation to a given set point
- Possible to connect to the grid control system for remote control or monitoring of the grid
- Energy efficient and environmentally friendly, using proven ABB technologies
- Fireproof, completely free of oil
- Optimized voltage steps for a good voltage stability and a minimum of switching operations
- Short delivery time
- No or simple authority approvals since mounted in cable distribution cabinet
- Delivery free site
- Simple and fast installation

Single line diagram of line voltage regulator installed



Technical characteristics of the low voltage regulator

Rated power [kVA]	63, 125, 250
Frequency [Hz]/ Phases	50 / 3
Voltage [V] (Phase-Phase / Phase-Earth)	400 / 230
Insulation class [kV, AC]	3
Number of steps	11
Total voltage regulation range	±6 %
Step voltage	1.2 % (±5 x 1.2 %)
Number of switching operations (mechanical)	>1'000'000
Installation location	Outdoor
Installation type	Cable distribution cabinet IP44, DIN size 2
Dimensions (L x W x H) [mm ³]	1136 x 478 x 1100 (without socket)
Weight [kg]	300 - 350
Control modes	Fixed set-point (adjustable) Option: load-dependent voltage set-point
Losses [W]	Depending on regulation step and the actual power. For 250 kVA: – max. 900 W at full load and 6 % regulation – 80 W at no-load
By-pass switch	Contacting switch, fully by-passing the voltage regulator
Sound level Lp (1 m, max.) [dB(A)]	<40
Accessories	Temperature monitoring with overload protection Operating manual (English, German)

Note:

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