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# LVRSys
# the revolutionary low- voltage- regulation- system


**Stefan Hoppert**

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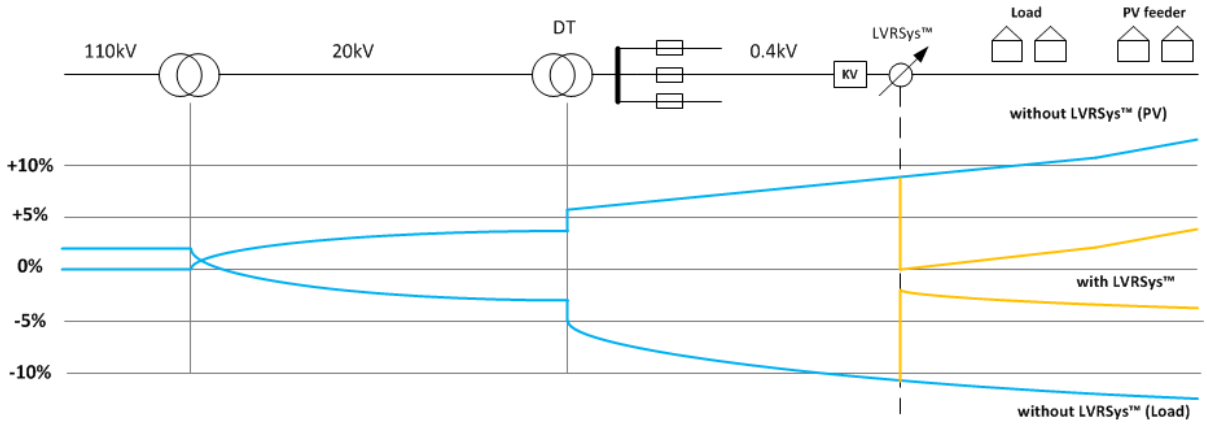
## Agenda

- Improvements of power quality
- Operating principle
- Applications
- Installation
- Planning & Simulation

# Improvements of power quality

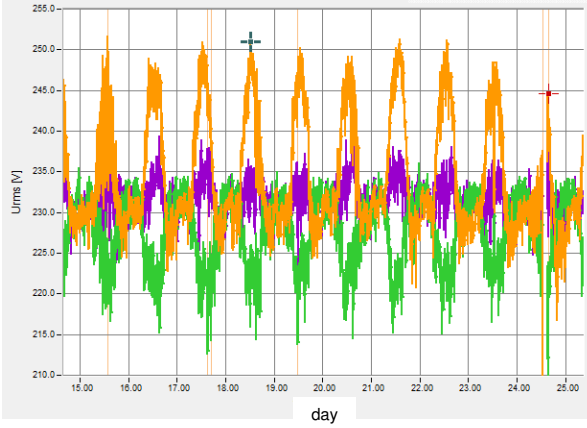






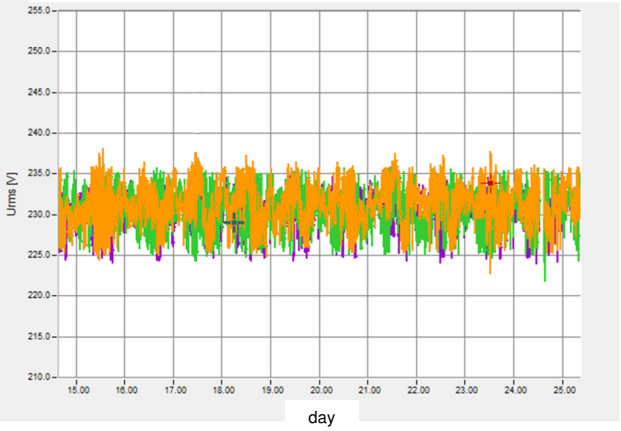

# Non regulated input voltage

# Regulated output voltage



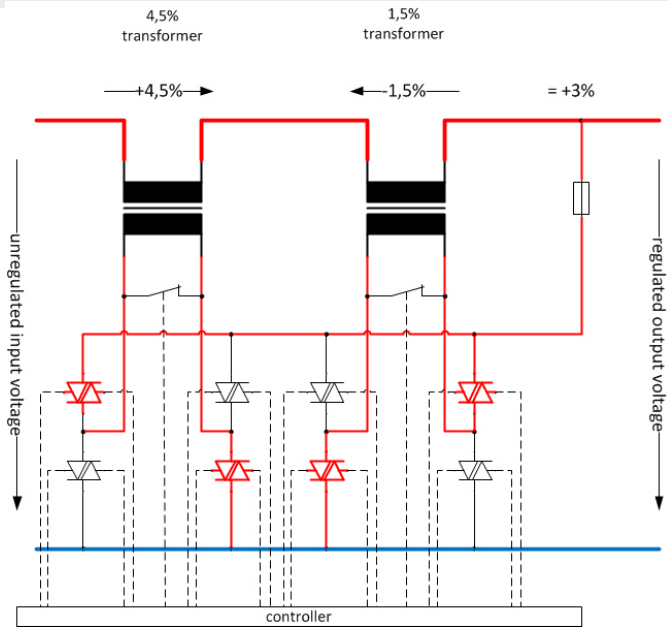

**without LVRSys**

**with LVRSys**



# Operating principle

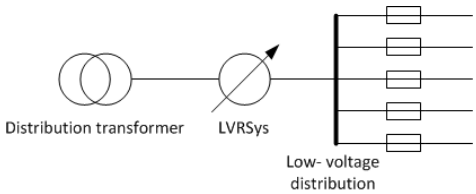
## Single- phase schematic



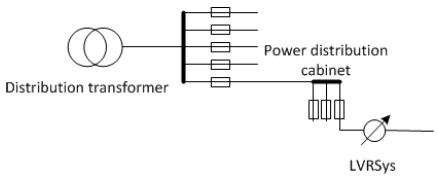




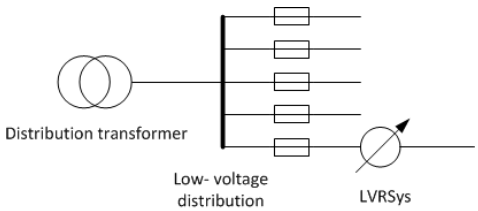

# Applications of LVRSys in the low voltage network



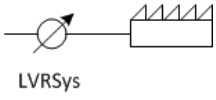

**250kVA - 630kVA**




**50kVA - 250kVA**



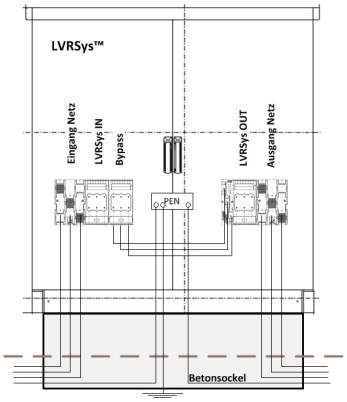

**110kVA - 250kVA**



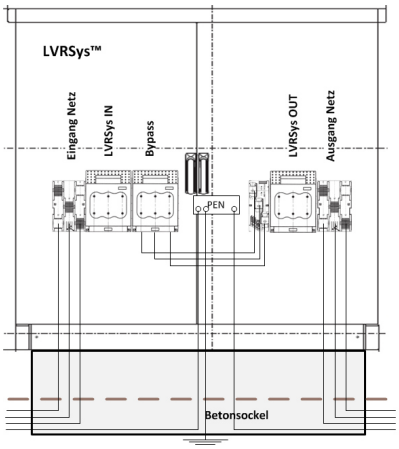

**50kVA - 630kVA**

# LVRSys™ Installation

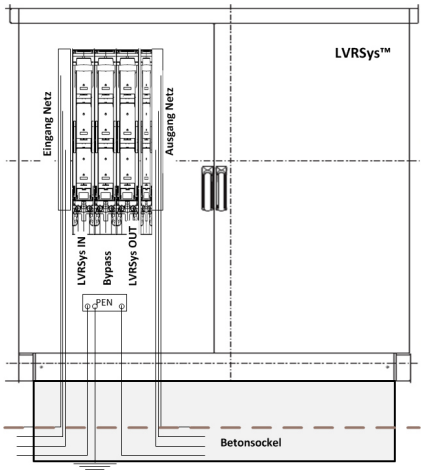
up to 110kVA




up to 175kVA




up to 400kVA




- Easy installation/dismounting/mooving
- Bypass integrated
- Concrete base included
- Easy transport

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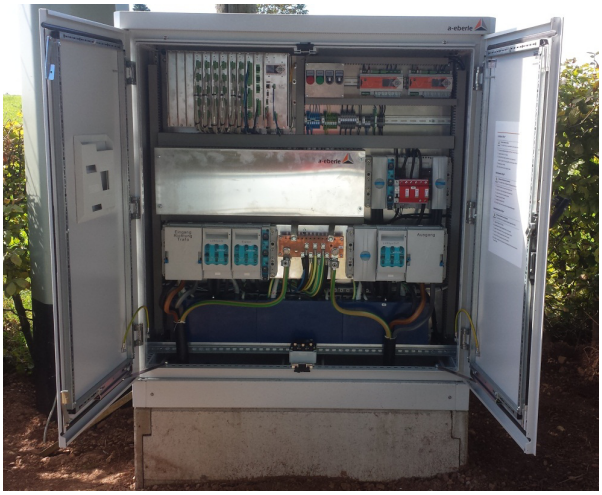

# LVRSys applications

- Voltage instability caused caused by renewable energy
- Voltage instability caused by changed loads (heat pump/electro mobility)
- Unbalance caused of one phase loads/feeders
- Energy saving in the industrial sector

**Guiding principle**
**„wherever a voltage stability problem exists, however the current carrying capacity of cables and transformers is not fully utilized, the LVRSys™ is a convenient and affordable alternative to solve this problem“**

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# LVRSys planning & simulation

| Messpunkt | Umin | Umax |
|---|---|---|
| MP1 | 228,7 V | 242,9 V |
| MP2 | 228,8 V | 243,1 V |
| MP3 | 229,0 V | 245,5 V |
| MP4 | 225,6 V | 250,2 V |
| MP5 | 228,6 V | 246,4 V |

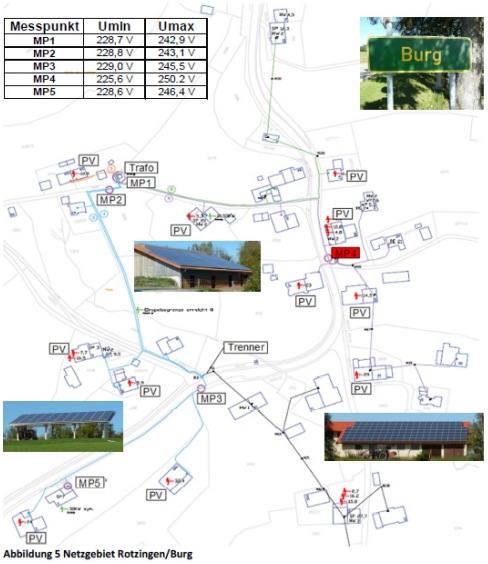
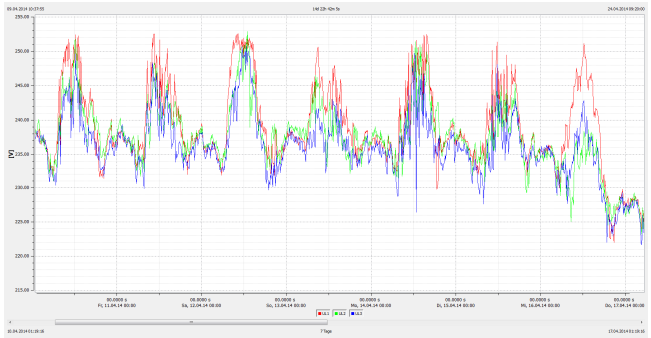


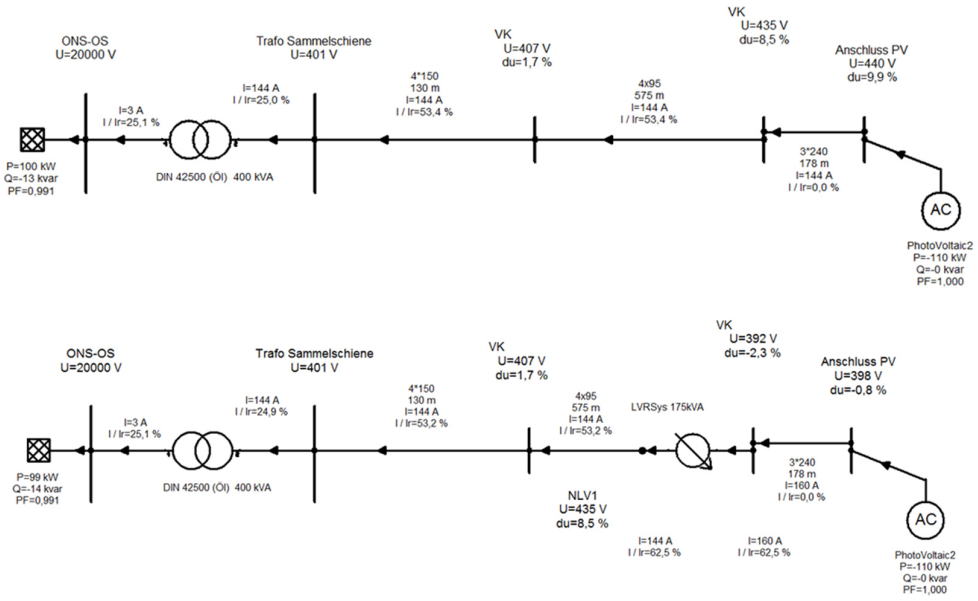

Abbildung 5 Netzgebiet Rotzingen/Burg

- Measurements of voltages in the grid „hotspots“
- Finding the voltage stability problems in the grid
- Calculation and comparison of solving overvoltages with line expansion or active voltage controler
- Simulation of LVRSys™ in the grid
- Decision to build up a LVRSys™ in the grid or not?
- Where is the LVRSys™ most useful?
- Power rate of LVRSys™?



# Simulation

**Example: network with/without LVRSys™**








# Thanks