12. Quality of energy

Study box for compensation of reactive energy - Advanced

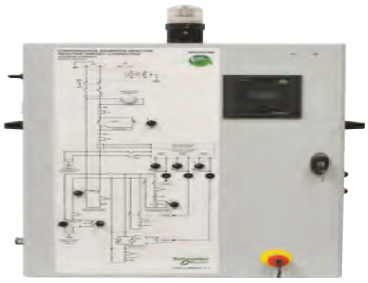
Training objectives

- Measuring the phase offset factor on linear and non-linear loads:
  - Influence of the line lengths,
  - Remedies enabling correction of the phase offset factor.
- Showing the inrush currents linked to closing of capacitors: measurement and reduction.
- Showing the overloads on capacitors (antiresonance) linked to harmonic phenomena.

Presentation

This cabinet is representative of a reactive energy compensation installation.
It features the following functions:
- Linear phase offset loads enabling variations in the phase offset factor for the installation,
- Varmetric measurement system,
- Reactive energy compensation system provided by banks of capacitors slaved by the varmetric relay,
- Static contactor enabling cut-off of the inrush current linked to the capacitors,
- A system of non-linear loads showing the antiresonance phenomena linked to circulation of harmonics in the capacitors,
- Corrective device with antiresonance induction coil.

Comment: execution of measurements and projects involves use of an RMS type universal controller or specific instruments (harmonic analyser).



RPC study cabinet

Description

Control cabinet	
Description	Quantity.
Mimic diagram	1
VarPlus Logic measurement system	1
Set of 3 capacitors.	1
Set of 3 induction coils	1
Measurement points on the right-hand side	

Lamp cabinet	
Description	Quantity.
500 W halogen lamps controlled by a dimmer	3

References	
Description	Reference No.
RPC study cabinet for reactive power compensation	MDG99160

Decision aid

Sectors concerned
- Electrical
- Energy

Designated skills
- Analysis
- Configuring
- Studying

Themes studied
- Energy from renewable sources
- Energy management
- Measuring
- Energy storage