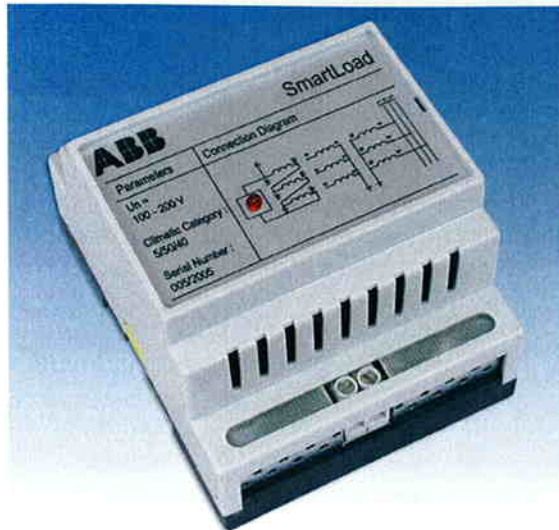


Ferroresonance-preventing device SmartLoad

Catalogue



1. APPROPRIATION

SmartLoad is a preventive device against the ferroresonance phenomenon which may be triggered in power networks with ungrounded, or not directly grounded neutral point. The ferroresonant oscillations may be initiated in ungrounded networks by switching or other transient phenomena and pose a significant damage risk to phase-to-ground connected inductive voltage transformers. SmartLoad prevents voltage transformers against potential ferroresonant overcurrent by prompt damping action (fig. 1). In comparison with other anti-ferroresonance devices, SmartLoad is design to be selectively active against the ferroresonant oscillations while being inactive against natural system asymmetry resulting from phase imbalance or single phase ground faults.

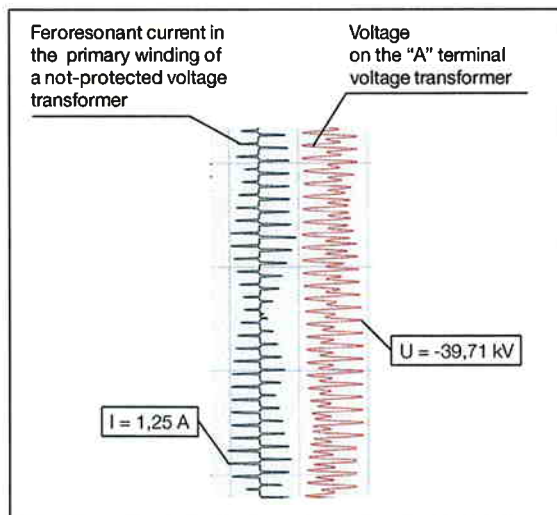


Fig. 1. Voltage and current flow diagram. Transformer is under the influence of ferroresonance phenomena.

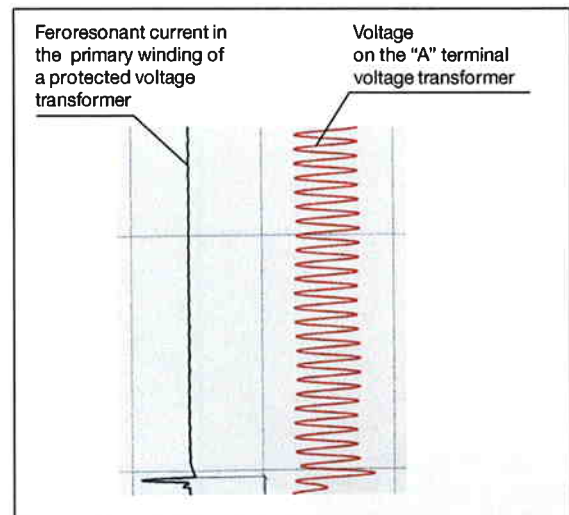


Fig. 2. Experimental demonstration of the SmartLoad effectiveness. SmartLoad connected to the open-delta arranged residual windings of the voltage transformers.

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2. USAGE

SmartLoad should be used in cooperation with voltage transformers connected in open delta (with VT's residual windings) configuration as it is showed at fig. 3. It is possible to use SmartLoad at the same time that earth-fault protection connected parallel with transformers open delta windings. That kind of connection doesn't have any negative effects on the earth-fault protection device functioning.

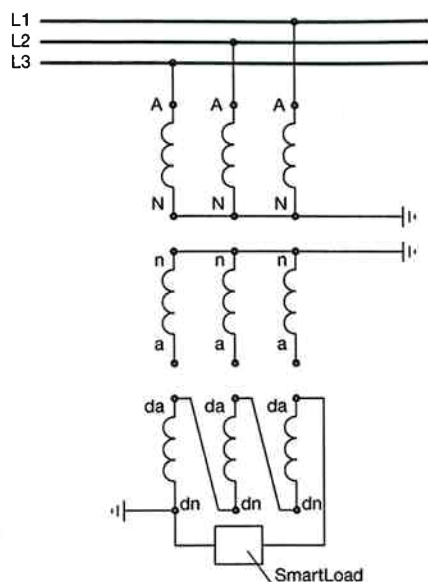


Fig. 3. The method of SmartLoad and voltage transformers connection.

3. ELECTRICAL PARAMETERS

Feed voltage 100 – 200V
 Range of insensibility zone 0 – 20V
 The effectiveness' active damping time at 100V 1 s.
 The ambient temperatures from -10 °C to +55 °C
 Maximal humidity up to 90%.
 The lowest permissible temperature during transportation and storage is -30°C

4. DIMENSIONAL DRAWING

Dimensional drawing is showed on the fig. 4.

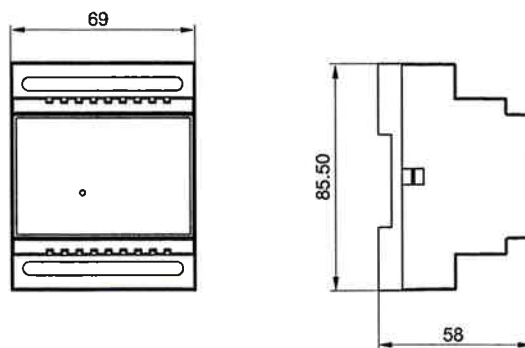


Fig. 4. Dimensional drawing.

5. WARRANTY

The manufacturer warranty is 24months since the day of putting the apparatus into operation but not longer than 36months since the day of purchase.

6. EXAMPLE OF ORDER

Ferroresonance-preventing device SmartLoad

ABB Sp. z o.o. reserves the right to slight changes in construction, dimensions and specifications of the final product without a prior notice.

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