

# **Search an electric prevention by controlling the resistive component of the isolation of an ungrounded low voltage electrical network**

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## **Abstract**

During the insulation testing of an electrical supply network having isolated neutral, the capacitive component does not allow us to know the state of the cable insulation. On the other hand it is the testing of the active component that helps in the electrical danger elimination in case there is an insulation failure. The current leak being a function of the active and capacitive component that could cause the disconnection of the electrical network even in the absence of faults. A compensation of the network capacitive effect gives the possibility to measure the resistive current leak. The experimental electrical circuits built allowed us to define the whole combinations between the leakage resistance (single-phase, double-phase and three-phase) and the different levels of insulation of the network with respect to earth. The obtained results give an insight into the domains sensitivity of the protection circuits of the insulation active component while keeping the leakage current at safe value of 10 mA.

## **Keywords**

Electrical insulation, leak current, leak resistance, harmless current, protection devices.