

## Computer-Based Model for Design Selection of Lightning Arrester for 132/33kV Substation

**Authors :** Uma U. Uma, Uzoechi Laz

**Abstract :** Protection of equipment insulation against lightning over voltages and selection of lightning arrester that will discharge at lower voltage level than the voltage required to breakdown the electrical equipment insulation is examined. The objectives of this paper are to design a computer based model using standard equations for the selection of appropriate lightning arrester with the lowest rated surge arrester that will provide adequate protection of equipment insulation and equally have a satisfactory service life when connected to a specified line voltage in power system network. The effectiveness and non-effectiveness of the earthing system of substation determine arrester properties. MATLAB program with GUI (graphic user interphase) its subprogram is used in the development of the model for the determination of required parameters like voltage rating, impulse spark over voltage, power frequency spark over voltage, discharge current, current rating and protection level of lightning arrester of a specified voltage level of a particular line.

**Keywords :** lightning arrester, GUIs, MatLab program, computer based model

**Conference Title :** ICEE 2014 : International Conference on Electrical Engineering

**Conference Location :** Kuala Lumpur, Malaysia

**Conference Dates :** August 25-26, 2014