
THERMAL BURDEN OF THE RITZ COUPLING CAPACITOR VOLTAGE TRANSFORMERS

1.0 INTRODUCTION

It is generally understood that the thermal burden of an instrument transformer is the maximum output in terms of volt-amperes that the equipment can provide without exceeding the temperature class rating of the insulation system used for the equipment. For coupling capacitor voltage transformers, because of the transient performance requirements and particularly ferroresonance suppression, manufacturers provide an overvoltage protection device for either the intermediate-voltage capacitance (C_2) or the reactance. For proper operation of the equipment, the overvoltage device will be activated when the output exceeds a pre-determined volt-amperes. For CCVT's, thermal burden is used to denote this pre-determined value of the output which would initiate the protective circuit.

2.0 THERMAL BURDEN - RITZ CCVT's

There is an overvoltage protective device provided across the reactance in the intermediate circuit. The main purpose of the protective device is to prevent excessive current from circulating in the intermediate circuit if a secondary short circuit is applied to the unit. A fast recovery from ferroresonance will result when the secondary short circuit is cleared.

The protective device is an air-gap set to flashover when the secondary output exceeds the declared volt-amperes. The current circulating in the intermediate circuit increases as the output increases. Flashover occurs when the reactance voltage, due to an increase of the circuit current, exceeds the voltage rating of the gap. This effectively removes the reactance from the intermediate circuit. The secondary output that results in the flashover of the overvoltage protective device of the reactance is the thermal burden rating of the CCVT.