7PG26 DAD

High Impedance Relays

Document Release History

This document is issue 02/2010. The list of revisions up to and including this issue is:

Pre release

02/2010	Document reformat due to rebrand

Software Revision History

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1. INTRODUCTION

The type DAD relay provides high speed, high impedance, 3 phase current differential protection with individual open circuit monitoring of the CT secondary circuits. The input filter characteristic rejects the d.c. offset transient and provides excellent harmonic rejection.

2. DESCRIPTION OF FEATURES

An advanced design input filter with a harmonic rejection circuit improves overall protection stability by rejecting the harmonics generated by the onset of CT saturation. CT inputs to the relay are connected to internally isolating CTs. Their secondary circuit develops a normalised voltage across a current setting resistor combination, voltage clipping provides protection for continuous or short term overloads. The voltage signal is then applied to a low pass filter which attenuates frequencies above the fundamental such that the relay will not operate on third or higher harmonics. This output is then rectified and applied to alarm and trip level detectors. Alarm and trip comparators operate when their input exceeds their individual reference voltage. They initiate the alarm timer, LED's and output relays. DAD relays are provided with four output relays each with two contacts, three of the relays, those normally associated with the alarm function, can be selected for latched / non-latched contact operation.

3. CURRENT TRANSFORMERS

For high impedance schemes it is necessary to establish characteristics of the CT in accordance with Class "X" to BS3938. For most applications the required knee point voltage will not be high and it will be found that the overall size of the CT will be smaller than that required for alternative current balance protection.

4. SELECTABLE SETTINGS

Settings are all made using Dual-in-Line (DIL) switches.

4.1. Current Settings

The sum of the values indicated by the switch positions is the percentage of the relay rating (i.e. In = 1A or 5A) at which the relay will operate.

4.2. Alarm Setting

The alarm setting is selected as a percentage of the main current setting and is based on a minimum value, to which percentage increments are added.

4.3. Time Delay Setting

The time delay, in seconds, is the sum of the values indicated by the switch positions.

4.4. Relay Reset

The relay reset is operated using the sliding lever mounted on the relay front cover. Operating the reset clears the latched data, resets the display and any operated relays, and also Lamp Tests the display LED's.

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4.5. Selection of Latched/Non-Latched Output Contacts

The relay outputs used for alarm functions can be set as either latched or non-latched. This setting is made using a set of DIL switches located on the bottom of the withdrawable relay chassis. See Section 5, Figure 8 for details of this setting.

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