Name   :   Amnat Tanprasertkul

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                     Processors.

Thesis Advisors :   Asst.Prof.Dr.Somchai Chartrattana,

                     Mr.Narin Vongpongsavivat.

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Abstract

Protection of power transmission line can be set up with distance
relays.   However, maloperation of distance relay can be found in some
cases of parallel transmission lines,or in case where abnormal voltage
are involved.Current differential relays have been developed to solved
the above mentioned problems with satisfactory results.

In Thailand current differential relays have been imported to be
used in transmission lines protection in the past few years. Up to the
present time , no known agencies in Thailand have made serious studies
or investigations concerning the operating concept.

The thesis reports the study and research in the design and
construction of digital current differential relay using distributed
processors and operates in same concept of commercial digital current
differential relay available in the local market.

The constructed digital current differential relay constructed
operates using the hardware and software of transputer and it can be
linked with microcomputer IBM PC by using 12 sample current per cycle
and fourier transform algorithms.

The output of constructed relay operation on 450-kilometer
transmission line model can detect faults theoretically . The minimum
pick-up current (IS1) for the relay operation detection using the

hardware setting is 30% . The lower bias percentage constant (k1) and higher bias percentage constant (k2) of the relay equal to 8% and operating time of the relay is 4100 mS. Although the automatic fault recording system and alarm annunciation takes quite long time , the calculation time on the transputer consumes only 20 mS.