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Electrical Interference in On-line PD Measurement

SCA1 ROTATING ELECTRICAL MACHINE
PS2 Question 2.7

Hideyuki NAKAMURA, Japan

TOSHIBA

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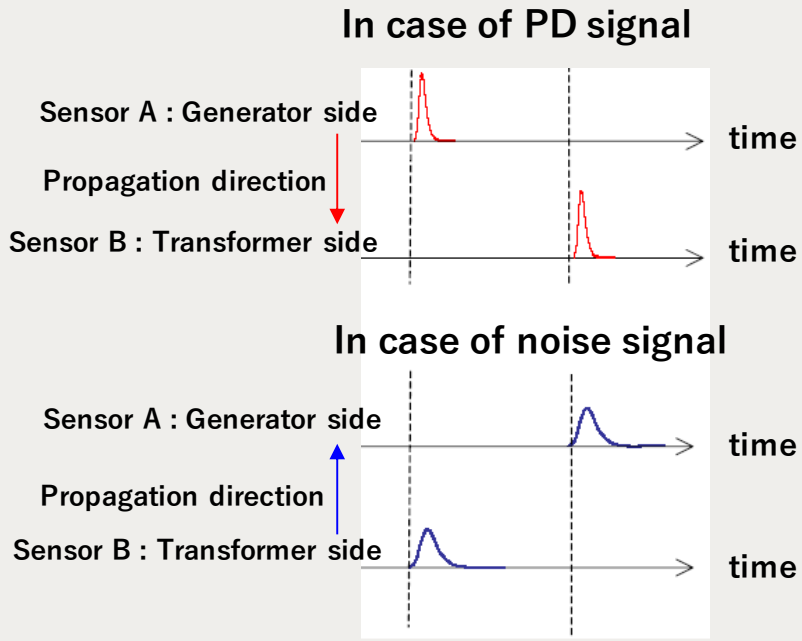
Question 2.7

How to handle the possibility of electrical interference that is in-board of the PD couplers, e.g., PD from the generator bushings or core iron sparking?

Noise Separating Technique described in the paper

- Two sensors are installed, and the time difference in detection of the PD signal determine whether the signal is coming from the generator side or from outside the generator.
- The electrical interference has not yet been clearly separated for online isolation currently.



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Possibility of Electrical Interference

- In our experience, a bushing discharge is a rare event.

  For example, a partial discharge quantity of a generator bushing is 43000 pC at 9kV of applied voltage.

Specification of a generator bushing

Item	
Rated voltage of generator	19kV
Frequency	60Hz
Type	Epoxy type
Hydrogen gas pressure	450 kPag

- The magnitude of the electrical interference signal can be considered to be larger than that of the stator winding PD signal.
- It would be possible to separate the electrical interference by the magnitude of signal and PD signal pattern.

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Conclusion

- The author is still in the process of examining how to separate the signals of electric interference from the PD signal from stator winding partial discharges, and experiments and measurements of signals will be conducted in the future.
- It is possible to separate the electrical interference, such as partial discharge of the generator bushing and the core iron sparking, because the magnitude of them is larger than the partial discharge signal of the stator winding PD signal.

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