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**NAGASAWA**(54) **NOISE REDUCTION DEVICE**(52) **U.S. Cl.**(71) Applicant: **Mitsubishi Electric Corporation,**  
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(2013.01)(72) Inventor: **Shinobu NAGASAWA,** Chiyoda-ku,  
Tokyo (JP)(57) **ABSTRACT**(73) Assignee: **Mitsubishi Electric Corporation,**  
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A compensation signal generator generates a compensation signal for canceling an electromagnetic noise on a connection line on the basis of a detection signal of a noise detector. A compensation signal injector injects the compensation signal into the connection line. A compensation signal detector outputs a detection signal of the compensation signal. A low-frequency component subtraction unit amplifies a component in a predetermined first frequency region of the detection signal and negatively feeds back the amplified component to the compensation signal generator. An intermediate frequency component addition unit positively feeds back a component of a predetermined second frequency that is higher than the first frequency region in the detection signal to the compensation signal generator.

