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**KOINUMA**(10) **Pub. No.: US 2023/0231447 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **ELECTRICAL POWER CONVERSION  
APPARATUS**(52) **U.S. Cl.**CPC ..... *H02K 11/25* (2016.01); *H02K 11/35*  
(2016.01); *G05D 23/1932* (2013.01)(71) Applicant: **Mitsubishi Electric Corporation,**  
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An electrical power conversion apparatus is obtained which can accurately estimate a temperature of a rotating machine when a state of its cooling device for cooling it changes, and reliably carry out its protective operation, so that its failure to be brought about because of its high temperature state can be prevented. A control device of the apparatus comprises: a rotating machine losses calculator for calculating losses of the rotating machine by using its output status; a cooling-device state estimation device for estimating a state of the cooling device from a temperature detection value of a temperature detector for detecting a temperature of the rotating machine; and a rotating machine temperature calculation device for estimating a temperature at a predetermined position of the rotating machine, based on a rotating machine's losses calculation value of the rotating machine losses calculator and an estimation result of the cooling-device state estimation device.

