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角速率平台伺服机构的智能控制与容错研究

晏磊, 王丽娜, 范跃祖, 张洪钺

北京航空航天大学301教研室, 北京, 100083

INTELLEGENT FAULT TOLERANCE CONTROLLER FOR SERVO MOTOR OF PLATFORM IN AN INERTIAL NAVIGATION SYSTEM

Yan Lei, Wang Lina, Fan Yuezu, Zhang Hongyue

Faculty 301, Beijing University of Aeronautics and Astronautics,Beijing,100083

摘要

介绍了角速率平台伺服机构智能控制研制进展。用单片机控制，对角速率反馈通道实现了2次故障判别、1次系统重构。用Fuzzy控制建立了相应隶属函数，确定了故障判别阈值。实验表明系统工作稳定，故障的Fuzzy差别合理，故障通道切换平稳，重构后系统工作仍正常。

关键词： 角速率 余度 模糊系统 故障－阈值

Abstract:

An intellegent angular rate control for servo motor of platform in inertial navigation system(INS) with fibre optic gyro is developed. The servo control with double feedbacks of angle and angular rate is implemented by using 16 bit single chip computer 8089, in which two stage fault discrimination and one stage system reformation are implemented by the provided angular rate feedback channels with double redundancy. Fuzzy control relationship is set up to form its membership function and determine its fault discrimination threshold. It is shown in the system experiment that the intellegent control system works well, fuzzy discrimination of fault is correct , the channel switching under fault is steady, and the reformed system in which the fault is cut off works also normally.

Keywords: angular velocity redundancy fuzzy systems fault-thresholds

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