基于DSP的两相无刷直流陀螺电机稳速系统

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摘　要：

为了进一步提高陀螺仪的寻北精度，分析研究了陀螺电机转速大小和转速精度对寻北结果的影响。在此基础上设计了一种基于TMS320LF2407A的两相无刷直流陀螺电机控制系统，阐述了两相无刷直流电机的工作原理，并通过对硬件系统和软件算法的设计实现了两相无刷直流陀螺电机的闭环控制。实验结果表明：系统可以很好地完成电机的启动、制动和平稳运行，转速精度优于10-6，满足陀螺仪的工作要求。

关键词：陀螺寻北；两相无刷直流电机；速度稳定性；DSP

Control System of Two-phase Brushless DC Gyro motor Based on DSP

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Abstract:

The research of the influence of gyro motor speed stability on the north-finding result is studied in order to improve the gyro north-finding precision. The paper introduces a two-phase brushless DC gyro motor control system based on TMS320LF2407A. First it expounds the two-phase brushless DC motor's working principle. Then through the design of the hardware and software system，the two-phase brushless DC gyro motor control is realized. The experimental results show that : the system can drive the brushless DC gyro motor well starting、braking and smooth running. The precision of the steady speed is less than 10-6 and the characteristics of the system satisfy the gyroscope demand.

Keywords: North-seeking gyro; two-phase Brushless DC motor; speed stability; DSP

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