

光电轴角编码器光电信号正交偏差的测量和补偿方法

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摘要:

高精度光电轴角编码器细分误差中莫尔条纹光电信号的正交性偏差影响最大。采用锁相环测量偏差+软件补偿的方法对正交性偏差进行自动校正和补偿, 效果明显。在补偿过程中, 以正弦信号为基准信号, 对余弦信号进行计算补偿, 得到一个新的余弦信号来代替硬件中原有的余弦原始信号, 使新的余弦信号与正弦信号正交, 同时包含了余弦原始信号的所有信息。实验结果表明, 在一定偏差范围内, 经过补偿后, 信号的正交性偏差得以明显降低。

关键词: 锁相环、细分误差、正交偏差

A method to measure and offset quartering deviation of encoder

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Abstract:

The quartering deviation is the most important part in interpolation error of encoder. It's necessary to measure and offset the quartering deviation. The method mentioned in this article is a way to measure and offset the quartering deviation. First, measuring the Quartering deviation, using the Phase-Locked Loop, and then compensate for it in software. In the process of compensating, the sine signal of encoder is regarded as the reference to get a new cosine signal to replace the old cosine signal in the system. In this way, The sine signal and cosine signal become quartering seriously and included all the information in the encoder system. The experimental result showed that in a large range of deviation, The interpolation error of signal reduced obviously through offsetting the quartering deviation

Keywords: Phase-Locked Loop Interpolation error Quartering deviation

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