

pH传感器温度补偿模型研究

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摘要:

水质pH值在线监测对提高水产品健康养殖至关重要, 本文将无线传感器网络与pH值传感器相集成, 设计了pH值监测的无线传感器网络系统。为克服pH值测量过程中温度对测量结果的影响, 提出了一种pH传感器温度补偿模型, 该模型通过pH传感器和PT100铂电阻温度传感器分别测量溶液的pH值和温度, 利用最小二乘法对pH值和电压进行线性分析, 建立pH传感器的温度补偿模型。实验结果表明, 该补偿模型测量精度高, 能够实现较精确的pH值在线监测。

关键词: pH传感器; PT100铂电阻温度传感器; 温度补偿模型; 最小二乘法

Research on pH sensor temperature compensation model

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Abstract:

Water quality of pH online measurement is very important to improve the health aquaculture, wireless sensor networks system for pH monitoring based on wireless sensor networks and pH sensor is designed here. To eliminate the effect of temperature on the measurement results, a temperature compensation model of pH sensor has been proposed here, the model measuring pH and temperature by pH sensor and PT100, and using the least squares method to analyze the linear relationship between pH and voltage, establishing a pH sensor temperature compensation model. The results show that, the compensation model has high measurement accuracy, and it could be realized a more accurate in pH online measurement.

Keywords: pH sensor; PT100; temperature compensation model; least squares method

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