

基于二级RBF神经网络的冷库温度的在线预测优化控制

Online Predicative Optimum Control of the Temperature of a Cold Storage Based on the Two-Stage RBF Neural Network

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中文摘要:

冷库温度预测优化控制在果蔬冷藏方面的应用尚有许多不足之处。主要问题之一是不能通过简练有效的计算完成制冷系统的在线优化控制计算。RBF神经网络有极强的非线性映照能力和良好的插补性能,且训练速度快。该文提出使用二级RBF神经网络,并合理地综合利用状态量以往的测量值和预测的未来值来实现库温的在线预测优化控制。将该方法用于某冷库库温控制系统,取得了满意的结果。

英文摘要:

The predicative optimum control of the temperature of a cold storage has a wide application in agricultural engineering especially in fruit and vegetable cold storage. In recent years, the advanced control technology was used for the cold storage. But there is still a lot of shortcomings. One of the main problems is that the traditional methods can't realize the online predicative optimum control of a cooling system with simple and valid methods. A RBF neural network has a strong ability in nonlinear function and a good inter value performance, and it has a higher training speed. Therefore a two-stage RBF neural network was proposed. Combining the measured values and the predicated values, the two-stage RBF neural network was used for the online predicative optimum control of the temperature of a cold storage. The application result of the new methods in a real cold storage showed a great success.

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