

AUTOMATION OF SYSTEMS AND EFFICIENCY OF SOME CONTROLLERS IN THE TEMPERATURE CONTROL WITH OSCILLATIONS IN THE TEMPERATURE OF ENTRANCE

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Resumo

One of the advantages of automating systems is the ability to remotely monitor where users can make changes to key system variables. The difficulty in assembling control systems is the successful integration of the units involved. All devices are integrated into a central control unit and based on their communication protocols, a general supervision and data acquisition control system is developed. In order to allow remote operation and monitoring of the system a friendly environment was proposed together with the analysis of the control architecture and integrated infrastructure, an algorithm was developed for the efficient operation of the system. For an effective sterilization of liquid foods, elevated temperatures are used for a shorter time. The system is closed-loop with variations in the product's inlet temperature. The PID / feedback controller consisted of imposing oscillations on the manipulated variable and the values of K_c and the critical period were obtained from tests, with a low gain value this system presented a low offset. The PID / feedback / feedforward consists of specifying the parameters T_c , t_i , t_d and the gain K_{ff} that is made through reaction curves obtained after changes in the input parameters. This controller kept the temperature within the desired safety range. The fuzzy / PID consisting of fuzzy controller gain

based on linear PID, three parameters were tested - proportional, integral and derived gain. This controller proved to be unsatisfactory, since the temperature oscillations were high.

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