

Combination of Second-order Interpolation with Loop Transformation for the Measuring Fluid Parameters in Multi-channel System

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Abstract: The fluid path systems have been widely used in many industries and civil. For the purposes of monitor important parameters of fluid such as the temperature, pressure and flow, in order to maintain the stability of system and avoid relative emergencies, we have to measure these parameters. This study presents one method for designing the multi-channel measuring system that includes modern digital data processing as micro processing, programmable logic controllers and field-programmable gate array. By using the measured information processing algorithm, we have used a combination method of the second-order interpolation through three succeeding data points with the loop transformation. The errors of system are significantly reduced. The data processing speed are also improved. The results calculated by using the MATLAB program have shown the ability to reduce errors of measurement devices.

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