

Abstract Submitted
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Key aspects in the implementation of algorithms for digital processors in velocity and size measurements DAN TROOLIN, JIM EVENSTAD, WING LAI, TSI Fluid Mechanics Research Instruments, Shoreview, MN, USA, FLUID MECHANICS RESEARCH INSTRUMENTS TEAM — Digital signal processing techniques are used to extract accurate flow and size information in complex and difficult measuring situations. Some of the key aspects that are vital to the performance of signal processors are discussed. Limitations of theoretical approach in evaluating the processing techniques are outlined. Simulations have been carried out to examine the influence of some of the parameters not covered by the analytical approach. The robustness of the auto-correlation technique with quadrature mixing is demonstrated through simulations. The advantage of adapting advantage of adapting a processing technique to be well suited to the nature of the signal, as well as the importance of pre-processing or conditioning the input to be properly positioned for the algorithm are pointed out. Finally the benefits of the auto-correlation technique are proven through experimental measurements.

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