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(ckyo@khu.ac.kr*)

In the water distribution system (WDS), burst causes economic losses for water companies as well as potential risk to public health. Therefore, rapid and noise-robust monitoring method and accurate isolation method is necessary. In this study, to detect burst rapidly and robustly against noise, combination of principal component analysis (PCA) and exponentially weighted moving average (EWMA) is used. In addition, optimal sensor location is obtained by principal component analysis (PCA) and k-mean cluster analysis for accurate burst isolation. As a case study, the proposed method was applied to a simple branched water distribution system. The results show that the proposed method is more robust for detecting the burst regardless size of noise as well as isolates the burst location more accurately than the conventional method.

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