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A Development of Portable Intrinsically Safe Explosion-Proof Type of Dual Gas Detector

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Abstract : In this paper, we developed a dual gas leak instrument to detect Hydrocarbon (HC) and Monoxide (CO) gases. To two kinds of gases, it is necessary to design compact structure for sensors. And then it is important to draw sensing circuits such as measuring, amplifying and filtering. After that, it should be well programmed with robust, systematic and module coding methods. In center of them, improvement of accuracy and initial response time are a matter of vital importance. To manufacture distinguished gas leak detector, we applied intrinsically safe explosion-proof structure to lithium ion battery, main circuits, a pump with motor, color LCD interfaces and sensing circuits. On software, to enhance measuring accuracy we used numerical analysis such as Lagrange and Neville interpolation. Performance test result is conducted by using standard Methane with seven different concentrations with three other products. We want raise risk prevention and efficiency of gas safe management through distributing to the field of gas safety. Acknowledgment: This study was supported by Small and Medium Business Administration under the research theme of 'Commercialized Development of a portable intrinsically safe explosion-proof type dual gas leak detector', (task number S2456036).

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